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Chaldean Art.

FROM the lowland-marshy alluvial region of the Tigro-Euphrates delta have come some very valuable records of the most primitive population of Chaldea. For some years a warfare has been raging between two rival parties of Assyriologists as to the situation of the two primitive provinces of the land of Chaldea. The earliest records which have been recovered, the rude semi-hieroglyphic brick legends, all give the early kings the title of ruler of the lands of Sumir and Akkad; and it is only by means of inscriptions recently discovered by Mr. Hormuzd Rassam at Babylon and in the treasure-chamber at Abbo Hubba, the site of the ancient Sippara, that we have been definitely able to fix the situation of these two provinces. It is now shown clearly that Akkad, or, as the name means, the Highland, was the region of Upper Babylonia, in which were the ancient cities of Sippara, the Sepharvaim of the Bible, and Agane, the primitive centre of the Semitic rule in Chaldea; while Sumir was the southern region, the land of the delta, and, as M. Lenormant has shown, was identical with the "land of Shinar," in which the first post-diluvian inhabitants of the land settled after their descent from the "mountain of the East." It is in this region that we find the most primitive cities of Chaldea, and it is in this region that all the traditions of the childhood of Mesopotamian civilisation are located. It was in this region that the legends placed the dwelling-place of Xisuthrus, the Chaldean Noah, who dwelt in the Isle of Immortality, situated "at the mouth of the rivers." It was here that the Annedotus Oannes, the mystic fish-man,—the Chaldean Dagon,—whose form appears frequently in Babylonian-Assyrian art, first imparted to men the rudiments of arts, science, and letters, and laid the first germs of the culture and civilisation which, in after-time, became the glory of Nineveh and Babylon. The explorations carried out on the ruins of Ur (Mughier), Erech (Warka), Senkereh (Larsa), and other primitive cities in this region, by Messrs. Layard, Loftus, and Rawlinson, have shown us how massive and time-defying are the edifices of the primitive builders of Chaldea.

The discovery of painted and decorated chambers at Ur and Erech and of Nipur (Niffer), and of neatly-engraved gems and cylinder seals of Urukh or Likbagas, the Orchannes of Ovid, one of the most ancient kings of Chaldea, served to show that these primitive Chaldeans had mastered the rudiments of art. But the discoveries now made by M. Sarzec in the mounds of the Tel-Ho, on the Shat-el-Hie, furnish us with examples of Chaldean art far in advance of any of the rude examples obtained by former explorers, and which tend to show that, close upon thirty centuries ago, the sculptors and bronze-workers of this primitive land had made great advances in art and art-work. Mr. Rassam, in a lecture before the Victoria Institute, which we have reported in these columns, gave an account of the site of this primitive city, and described the monuments he saw there. The explorations carried out by M. de Sarzec, the French Consul at Bassorah, for the French Government, have been most astonishingly successful in the recovery of interesting and valuable records. The mound of Tel-Ho is situated on the Shat-el-Hie, or River Hie, an ancient navigable canal, which joins the Tigris and Euphrates in their lower course. Leaving the former at Kut-el-Amarah, and taking a south-westerly course, it enters the Euphrates nearly opposite the ruins of the Ur. It forms, therefore, a diagonal, bisecting the province of Sumir or Shinar, and any city situated on its banks would be in close proximity to the other ancient towns of the land. The mound of Tel-Ho is situated on the north bank of the canal, and about half way between the two great rivers. From time to time, European and Arab explorers have obtained from this site bricks and cones, and two statues cut in black basalt; and shortly before his death, the late Mr. George Smith obtained some curious bronze statues, which are now in the British Museum. The inscriptions upon these objects gave the name of this ancient city as Zirgulla, that is, the "City of the Great Light," and the dedications, &c., proved that it was one of the great centres of Chaldean fire-worship. This fact is all the more interesting when we find that it was also the seat of the earliest "metal-workers' colony" in the land. From the explorations made on this site, M. de Sarzec has obtained statues of various sizes cut in black granite, basalt, porphyry, in bronze and terra-cotta, and numerous inscribed records. The majority of these records were found in the ruins of an ancient palace and temple, and the valuable collection has recently been acquired by the French Government for the Musée du Louvre. The inscriptions on these records belong to the most primitive type, and contrast strangely with the very advanced character and finish of the art. The greater number bear dedications to the patron deities of the city by a monarch named Gudea, who was the son of Dungi, and grandson of Urukh, or Likbagas, one of the earliest of the post-diluvian kings of Chaldea. The first monument which we may notice is a seated statue of a priest or king, which is cut with the most careful finish out of diorite. The head of the statue is unfortunately lost, but the remainder of the work is in excellent preservation. It has been suggested by M. Menant that this is the statue of an architect or geometrician, as on the knees of the seated figure there is a stone tablet on which is sketched the plan of some edifice or some geometrical problem. This plan or figure is also found on some tablets brought by Mr. Rassam from the site.* There is, however, no reference in the inscription to the person holding any such appointment, but on other records persons who are sculptors and wise men are mentioned.

The figure is seated with the hands folded on the breast, and is clad in a long robe to the ankles. This robe is of very primitive cut, and could have been little more than a large sheet. It is worn so as to cover the left shoulder and arm, leaving the right arm free. The feet are bare, and are most carefully cut, the toes and muscles being finished very accurately. The lower part of the dress and the stone or seat on which the figure is seated are covered with a long inscription cut in very archaic characters. This inscription contains the names and titles of many of the ancient Chaldean deities, and is a votive offering by Gudea patesi (viceroy) of Zergulla to the god Nergal. The head of the statue being lost, it is a little difficult to judge the type of the nationality to which the person represented belonged. This loss is, however, fortunately remedied by other monuments recovered, first by a beautifully-cut head of a porphyry statue, which has been recovered by M. De Sarzec, and also by the bronze statues of fire-priests obtained by Mr. Smith.† In the first example we have one type of features presented, and one which serves to connect the person represented with the Elamite and Susanian inhabitants on the eastern bank of the Tigris. Indeed, if this head, an excellent reproduction of which by heliography appears in the *Gazette des Beaux Arts* for December, is compared with the bas-relief representations of Elamites given in the sculptures from the palace of Sennacherib at Nineveh, and now in the Koyunjik room of the British Museum, a very close agreement will be found to exist. In both the earlier representation from Zergul and on the Ninivite bas-reliefs the figure is represented as wearing a cap with a decorated turban worn round it, while the head-dress and the costume are quite in accord with the figures on an ancient seal in the British Museum. A second type of features is presented in the bronze statues. Here we have a long-bearded face with high prominent cheek-bones, and a close resemblance to the Turcoman type, while the other beardless type is certainly Ugro-Finnic, and both types clearly show that we have a primitive population of Tartar origin. Indeed, no more striking proof could be brought forward of the Turanian origin of the primitive inhabitants of Chaldea. One other statue or monument requires to be mentioned before we

* We hope shortly to be able to give a description of these and other plans and drawings found on the recently-discovered monuments of the ancient Chaldean cities.

† Now in the British Museum, and figured in his "History of Babylonia."

proceed to state some of the important facts which may be gathered from the monuments of primitive Chaldean art. It is the statue in alto-relievo of a personage draped in the same manner as the other, but its mode of cutting and work furnishes us with some glimpse of the development of the art of sculpture in Chaldea. This statue has been cut out of a block of diorite, and exhibits a certain crudity compared with the other examples. A block of diorite has been chosen which, by its natural shape, could be turned into a statue of the human figure. Prominent parts of the surface have been utilised for the carving of the arms, and the trunk is that of the natural stone rounded, while for the extremities, by cutting away portions, the feet have been made to appear prominent below the long robe. Indeed, this a very valuable and interesting record of primitive art, as indicating the transition between sculpture in high relief and in the round. We have here examples but one step removed from *bætole* or astaroth figures of the Phœnician and Early Greek, or the Palladium of the Trojans. The statue of a goddess in the British Museum bears a remarkable resemblance to the rude figures from Hissarlik, discovered by Dr. Schliemann, and which were, no doubt, copies of the celebrated *Palladium*, and which, like the figures of the Ephesian Artemis and the Hittite goddess, were at one time roughly-shaped conical boulders. The seated figure which has come down to us is a similar work to the only statue mentioned by Homer. In the sixth Iliad the procession bears to the temple of Athene the sacred veil, where it is placed by the priestess Theano on the knees of the statue of the goddess. The statue must therefore have been a seated one, such as we have in the Chaldean example. The rude works, such as the statue of a goddess, dedicated by Gudea, now in the British Museum, or the bronze figure of the mother goddess, the Babylonian Cybelé, which was a votive offering of Kudur-Mabug and his son, in the twentieth century B.C., are but one step removed from the *daidala* which Pausanias saw in the Greek temples. It was only by degrees that they began to represent the human form at all, and it was long then ere they assumed the character of works of art. It has always been the same in the history of religious art, and it is curious to see how rarely religious worship and true beauty have been associated together in images. From the palladium of Troy to the icons of the modern Greek Church the same fact is prominent. Now, as we come to consider these valuable examples of Chaldean art it soon becomes apparent that they occupy an important place in the history of Western Asiatic art. In the first place, when we come to compare them with the art exhibited on the seals and cylinders we see a very marked agreement. The attitude and pose of the figures have always been the same; with folded hands the gods receive the worshippers, seated on rude thrones. The more advanced example, dating from the ninth century B.C., furnished by the bas-relief from Abbo Hubba, gives us a representation of a statue which is only a more highly finished example of that found at Zergul or Tel-Ho, which was made some 2,000 years before. But this style adopted by the schools of Chaldea spread to the West, and we see similar modes of representation,—similar conventional attitudes in vogue among the Hittite sculptors at Carchemish and at Eyuk, and later examples on the Lycian tomb of Harpagus, and in the seated figures from the Sacred Way at Barchide in Caria. The diorite figure in high relief, and in which an advantage has been taken of the natural configuration of the stone, closely resembles the figure of a Hittite priest of the Asiatic goddess found at Carchemish. In this example of early art the surface of a round columnular boulder has been hastily prepared for the reception of the sculpture. We have already pointed out in our notices of early Syrian and Hittite art that the influence of Babylonia was far more strong in the earlier examples of Boghaz Keui and Eyuk, and in the Hittite gems than that of Assyria. Though our knowledge of these works was then only deduced from a few very mutilated examples, the conclusions arrived at are now fully maintained by the rich find at Tel-Ho. The discovery of the bronze figures and implements in this ancient city show that at a very early period metallurgy was in an advanced state among the people soon after their settlement in the country. M. Lenormant brings much philological learning to bear to show that, prior to the separation of the primitive Akkadians from the other members of the great Ugro-Finnic and Tartar tribes, the northern branch, the Finn and cognate tribes, used a similar word for iron to that which appears in the Akkadian, or Old Babylonian, for copper; we have a similar transition here, then, as between Sanscrit and Latin, where, in the former, iron was *ayas*, which, in the latter, became *æs*, bronze. These facts show that, as one branch were natives of an iron-producing, so the others were natives of a copper-producing country, and the name applied by each was that of the word for "metal." The ancient city of Zergul was the chief centre of Chaldean fire-worship, and as such it became the principal place of the metal-workers. It is only necessary to glance at some of the hymns of the Chaldean Veda to see how intimately the connexion of the fire-god with metallurgy was observed and made a point of worship. Such phrases as "Fire, with thy pure and brilliant flame, thou mixest copper and tin, thou purifiest gold and silver," while in another text mention is made of pure molten bronze "in the crucible." The discovery of these works in copper and bronze in the ruins of the temple serve to show that at a very early period in Chaldean history the working of metals had reached a considerably advanced stage. Mr. Gladstone, writing of the state of art in Greece in Homeric times, says of the Greeks, "they used articles of bronze, but we never hear of tin as a commodity among them. They fused metals in moulds, but there is no trace of their mixing metals together." The gold-worker was a gold-beater, and in this work he was but a copper-smith to whom Nestor had given gold to plate the horns of a sacred bull. Yet with his anvil, hammer, and pincers he does this work. The fusion of copper and tin was known and practised by the Chaldeans, and on one of the figures in the British Museum there are traces of a finely-graven pattern which has been filled in with gold. The Jewish traditions make the ancestor of metal-workers Tubal-Cain, a dweller in this region, where now we find the earliest traces of Chaldean art.

These brilliant and important discoveries made by M. de Sarzec only tend to show how much there is yet to be recovered; how, in the low marshy region of the Affadj there lie buried or sunk in the morasses valuable records of the earliest chapters of the world's history. These discoveries, taken in connexion with the astonishing find of inscribed records in the Temple of the Sun-god at Sippra, the ruins of which have been found by Mr. Rassam, buried beneath the mounds of Abbo Hubba, are all the more valuable. The ancient records all state that Assyria was but a child of Babylonia, and it is the discovery of such remarkable works of art as these, or of such a mass of literature as the 10,000 tablets unearthed by Mr. Rassam from the library of the Temple of Sippra, that brings to us solid proof of the greatness and learning, skill and wisdom, of the ancient Chaldeans.

It is to be hoped that now that Babylonia, the war-swept country, has still been proved to have buried beneath her many grave-mounds such valuable records and monuments, a new and strong effort will be made on the part of all students of history and archæology to extend as wide as possible, and in a thoroughly systematic way, the work of exploration in this ancient cradle-land of the human race. Were the work carried out in a manner worthy of the great cause of the recovery of the past, we feel sure that the greatest possible benefits would be gained by all branches of research, and many lost chapters and paragraphs of the world's history would be restored to us.

The Alterations at the Manchester Cathedral.—Under the directions of Mr. Crowther, the architect, the work of the restoration of the pillars of the Manchester Cathedral is rapidly proceeding, and the first arch, just in front of the north door, is finished. Now that the thick coating of plaster has been removed the beautiful original lines of the pillar are brought to view, and some idea may now be gained of the light and graceful aspect that will be presented by the arches when the whole work is complete. The stones which were loose and crumbling have been removed, and others substituted, so that not only will the interior of the cathedral be made more beautiful, but the supports of the roof will be rendered much safer.—*Manchester Courier.*

REMARKS AS TO THE VENTILATION OF THE CHANNEL TUNNEL.

TRUTH STRANGER THAN FICTION.

The accounts which have of late been so freely sent to the daily newspapers of the visits paid by Royal and otherwise distinguished people to the works in progress with reference to the Channel Tunnel, have been generally silent as to those elements of the case on which alone any judicious opinion of the prospects of the undertaking can be founded. The progress of the seaward driftway, as the public are aware, has now been, at all events for the time, arrested, by the interference of the Administration, on reaching low-water mark, beyond which limit the Government claims the ownership of the bed of the Channel, at least on the English shore. Pending this enforced idleness, some of the promoters of the undertaking have paid a visit to the trial-shaft at Sangatte, on the French shore. In the brief account of their visit one or two points are mentioned, the full significance of which will escape public attention without a word or two from some expert in railway construction.

The depth of the shaft at Sangatte is stated at 280 ft.,—the driftway, now advanced 300 yards from the shaft, being 10 ft. in height. We may here note that, on the English side, from the best information we can collect (for the application on the part of independent professional men to be allowed to see the works has been refused), the depth of the shaft is 140 ft., and the inclination at which the driftway falls towards the centre of the Channel is 1 in 80,—a depth of 170 ft. having been thus attained before the stoppage of the work.

The only hesitation which we have in speaking as to these depths, assuming them to be correctly given, is due to the fact that they are not referred to a definite datum level, such as high-water line. Still, taking the last-mentioned depth on the French coast as below that datum, and supposing the driftway to be run (as is usually the case) along what is intended to be the crown of the tunnel, the rails at this point will be nearly 295 feet below the top of the shaft. For the railway to rise to that level, at a gradient of 1 in 80, will require a distance of 4·47 miles. In that distance, however, according to the best information accessible to us at the moment, the level of the country will have risen by at least 25 ft. to 30 ft., requiring a further distance of half a mile before the railway comes to the surface. On the English shore, again, on the above data, it will require a distance of 2·65 miles for the incline of the rails to reach a level of 20 ft. above high water.

But when these distances are added to the 21 miles from shore to shore, they come to a length of 28¼ miles for the tunnel. We will not insist on accuracy to a few feet, for the before-given reason that the references of the levels are not made to any recognised datum. But, as far as the public is in possession of information, 28 miles will be the minimum length of the tunnel; and even that length is only obtained, as a minimum, by the introduction of a gradient such as is usually regarded as highly objectionable on locomotive lines.

We have seen no statement of the minimum length at which it was proposed that the tunnel should be made. But we have here, on data which can only have been furnished by the promoters of the undertaking, a state of things which is very serious. For ventilation, which in itself is a very important consideration, we will only regard the distance from shore to shore, as large shafts are practicable as soon as the land is reached. But for first the construction, and then the working, of a tunnel twenty-eight miles long, what estimates have been prepared? It is surely high time that the public should be told something on this score.

A hundred thousand pounds, we were told by Sir E. Watkin at a recent meeting of the Submarine Railway Company, have been raised for the experiments now, or lately, in progress. We do not address the gentlemen who found that sum. They had their own information, and their own motives; and we do not feel entitled to put any questions to them as to either. But Sir E. Watkin further told the meeting that his proposal was to make one mile of tunnel complete, and then to call upon the Government to make ten or eleven miles more. As to this, we have a good deal to say. It is a proposal that comes home to every taxpayer, and we say that no man, or body of men, is justified in making such a demand, if even they can be held

to be justified in making a large outlay which will be fruitless unless such a demand is accorded, without in the first place making a plain statement of what they wish to do, and of what they consider to be the debtor and creditor account of this scheme when carried into effect.

Speaking now simply on the information accessible to the general public, we must say that the idea of a tunnel of twenty-eight miles long is a new one to us. The length is entirely without precedent. That of the Mont Cenis tunnel is 7·6016 miles; that of the San Gothard tunnel is 10·0688 miles. The questions of the working and of the ventilating of such a tunnel as that proposed beneath the Channel are of the gravest description. The public are not educated judges as to the details of such operations. All the more necessary is it that such clear, intelligible, masterly statements should be put before them as shall convince them that no doubt is entertained by competent and disinterested judges who have fully discussed the matter. Then, again, as to traffic. How many persons who have their choice of a trip across the Channel in the *Calais-Douvres*,—to say nothing of the yet more powerful boats that are in course of construction,—as compared with twenty-eight miles of a railway journey, of which their only anticipations can be obtained from the experience of the Metropolitan Railway, would choose the latter? Nay, more than that, if they did prefer the latter, what will be the actual capacity of a tunnel of that enormous length for the conveyance of traffic?

On these points we shall have, it may be, something to say. We will now only say this much, that the addition of each mile to the length of a tunnel constitutes not only a positive, but also a negative evil. Not only does it increase capital outlay, and increase working cost, per unit of traffic and of distance, but it diminishes earning capacity, and that in a very serious ratio. As to this, however, it is for the advocates of the line to speak first. The estimates which the public require are those of the intending makers of the line. We may be in error and behind-hand with the rest of the world; but we have kept our attention fixed on the subject from the moment of its first suggestion, and as yet we have seen no estimate, either of length, of cost, or of traffic.

Let us look for a moment at the question of the ventilation of the tunnel. It is one as to which the architect is pretty nearly as much at home as the engineer. We leave out of notice what may be called projects of "fancy ventilation," that is to say, of forming a special conduit for the products of combustion at the top of the tunnel, with the view of diminishing the exhaustion required. We do this for two reasons. First, we hold that any plan for the execution of which the public are asked to find millions ought to be based on practical experience, and not upon theory; and secondly, considering the relative gravity of carbonic acid gas and common air, we are not of opinion that an exhaustion that would keep the tunnel pure could be readily effected by the suggested "separate system." Taking it, therefore, as the ground of inquiry, that such a ventilation must be maintained through the whole tunnel as shall prevent the atmosphere from being charged with more than a treble dose of carbonic acid,—that is to say, with 15 volumes of carbonic acid in 10,000 volumes of air,—let us turn to those rules and formulæ for ventilating tunnels which are to be found in the best authority on the subject, the third edition of Mr. Simm's standard work on "Practical Tunnelling."

Neglecting the subterranean ends of the tunnel, and taking the length only as 111,000 ft., or 21 miles, in round figures, and allowing fifteen trains each way, or thirty in all to pass during the twenty-four hours, the engine-power required to effect ventilation, according to the formulæ on page 342 of the work cited, will be more than 2,000-h.p. (2,187-h.p.). Allowing the very moderate proportion of 7 tons of coal per horse-power per annum (taking 330 days of twenty-four hours each), we have a quantity of upwards of 15,000 tons of coal per annum required for this purpose. At 1*l.* per ton this comes to 725*l.* per mile of tunnel per annum for fuel alone. Then we have to add for labour, and for interest, maintenance, and replacement of machinery. Let us take these as low as possible, and we still come to the fact that the ventilation of the tunnel alone (according to the accepted rules), will cost more than the entire cost of working of the Scottish railways, taken mile for mile.

But the problem is by no means so simple as to be set at rest by a formula. The cost above given provides for the maintenance of a current of a little less than eight miles per hour through the tunnel, that being the rate required to keep down the proportion of carbonic acid to 15 in 10,000 volumes. But the wind very often attains three or four times this velocity. Assuming that, on the ground of the usual prevalence of westerly winds, the ventilating apparatus is erected at Sangatte, what will happen when a violent east wind arises? It would seem to be indispensable that there should be an apparatus at each end, to be worked according to the set of the wind. But here is a double expense in everything except fuel.

Again, we have kept down our estimate of the length to be ventilated to the submarine portion of the tunnel alone, because "the rapid increase of power," Mr. D. K. Clark tells us (in the work we have cited, page 343) "necessary for artificial ventilation, in proportion to the length of the tunnel, is very remarkable. The increase, in fact, takes place in the ratio of the fourth power of the length, so that a tunnel twenty miles long requires 10,000 times the power for ventilation required for a tunnel two miles in length." This is not a mere theory got up in order to oppose any particular scheme. It is the statement of a standard work, which is the latest authority on the subject in the English language. It is proper that the public should be made aware of the plans suggested for this end. The case is complicated by the presence of the ends of the tunnel. To make the ventilating apparatus effective at the shaft, the comparatively short length from that shaft to the outer air must be in some way closed, otherwise the exhaustive power would be at once reduced by half, and, indeed, by much more than half, as the friction through the two or three miles of the tunnel end would be so much less than that through the 21 miles of tunnel, that there is great question whether the body of air filling this latter space could be set in motion at all by exhaustion at the shaft, if the shore end opened into the same shaft. Thus, the ventilation is not a mere matter of cost, it is a question of physical difficulty; and only one of those questions of that nature the importance of which increases in a very rapid ratio with the increase in the length of the tunnel.

These figures are so large, that we are careful to cite our authority for them very distinctly. They are worked out by the formula $H = \frac{V^3 P L}{27{,}000{,}000}$; where H is the total indicator horse-power required; V is the velocity of current in feet per second; P is the perimeter of the tunnel, in feet; and L is the length, in feet. And Mr. Clark's table states that for a tunnel twenty miles long, with four trains per hour both ways (two each way) the horse-power required for ventilation is 15,140 horse-power, or more than seven times what we have taken.

It may perhaps be urged that the need of so much ventilation will be obviated by the use of some as yet untried mode of propulsion for the trains through the tunnel, so that the escape of the products of combustion will be avoided. Far be it from us to deny the possibility of such improvements. But the first requisite for any business-like discussion of an engineering scheme is, that the outlay of money should be based, not on hope, but on experience. As far as we are yet acquainted with the progress either of the compressed air locomotive, or the electric method of propulsion, the length and gradients of the tunnel offer very serious difficulties. We do not say that they are insuperable. But we say that it does not become men of business to commence an undertaking without both counting the cost, and having practical experience of the mode in which it is to be completed.

We may add that every method, possible and impossible, of working and ventilating a long tunnel was discussed at great length, on January 18 and 25, 1876, at the Institution of Civil Engineers, and that Mr. D. K. Clark's additions to the third edition of "Practical Tunnelling," which we have quoted, are given as the outcome of that discussion.

The Spring Exhibition of Modern Water-Colour Drawings, Brighton, was opened to the public on Thursday, April the 20th.

SOME PRACTICAL NOTES ON BUILDING WOODS.

In a previous paper we commented at considerable length upon the unmeaning terms so frequently adopted by architects when defining in their specifications the sorts of timber which they require to be used in their buildings.* That such meaningless terms have been commonly used has arisen, we feel certain, less through carelessness than through an insufficiency of knowledge. The real state of the case, perhaps, is that the timber trade is a trade concerning which architects possess really very little information. It is a trade that is not only extremely difficult to learn, but it is one that is continually undergoing marked alterations and changes. Timber itself is a material which affords infinite scope for all sorts of arguments concerning its durability, its strength, its relative cheapness, and its suitability for the thousand and one purposes to which it is every day being applied. The changes that occur in the forms of manufacture in which it is shipped to this country have been less the outcome of fashion than they have been endeavours made to meet the ever-altering requirements of those whose business it is to make use of it. It is well that, now-a-days, the saw-mill owners abroad, having, perhaps somewhat tardily, recognised the economy and pecuniary advantage of sawing up wood into shapes convenient for immediate use, are now quite willing to listen to advice and suggestions made to them on this side, because until quite recently they, by obtusely declining to adopt any suggestions made to them as to alterations in modes of manufacture, not only foisted on to our builders a number of inconvenient sizes, but to retain what may be termed "orthodoxy of size" they wasted yearly an immense amount of exceedingly valuable wood. What this waste has in the aggregate amounted to will, doubtless, never be accurately reckoned; but it has been sufficiently extensive to well warrant us in saying to them, with Pomona's bard,—

> "Attend my lay, nor hence disdain to learn
> How nature's gifts may be improved by art."

Some of the faults of form of manufacture are retained to-day, and little hope of any immediate alteration can be entertained. A notable instance is that of mahogany.

Every user of mahogany knows perfectly well that the soundest, and the most highly figured, wood is nearly always to be found on the outside of the logs. By the system, therefore, which is in practice of squaring the logs, a great portion, and, in fact, the greatest portion, of *the most valuable* wood is wasted. Why such a ridiculous and wasteful form of manufacturing mahogany logs should be adhered to would appear to be incomprehensible, and, indeed, is only to be accounted for on the supposition that in a square form the logs are the most suitable for transit. Surely, however, an octagonal form would meet the difficulties of transit. By adopting such a plan of hewing the logs, if all the valuable portions of the wood were not preserved for use, yet a much greater quantity than is at present retained would be preserved.

The shippers abroad, and the foreign saw-mills, have, however, not been alone in matters relating to the waste of wood. Perhaps the greatest offenders have been the architects on this side. The losses which, through want of intelligent manufacture, shippers have caused have, for the greater part, been borne by themselves. The losses that architects are daily causing, either by their carelessness or by their lack of knowledge, fall entirely upon the builders. In no cases do these losses occur more flagrantly and frequently than in those where weight-carrying beams are specified to be of what we will term "unequal sizes." It is necessary to define in the first instance what we mean by "unequal sizes." All log timber is hewn, and all sawn pitch-pine timber is sawn, into equal squares—*i.e.*, if a log squares 12 in. on one side, it will square 12 in. on all its sides. It is the same in every case, whatever the size of the log may be. Of course, a long pitch-pine log may taper in its length very much, but at each end its sides will be equal. To ensure economy, therefore, such unequal sizes as 12 in. by 7 in., 14 in. by 9 in., 18 in. by 10 in., or 12 in. by 5 in., and 14 in. by 8 in., should never be specified, unless it be imperatively necessary that such "unequal sizes" should be specified. It is obviously more economical to specify 12 in. by 6 in., 14 in. by

* See p. 412, *ante*.

7 in., and 18 in. by 9 in., as then it will at once be seen that by simply giving one deep cut to a log two "equal-sized" beams are secured. It may possibly occur to some architects that the piece or pieces cut off a log may be of considerable service to the builder, who may use them up for joiner's work. This, however, albeit a popular supposition, is quite an erroneous one. The thick slabs cut off the outside of logs in the conversion of beams are all but useless, in most cases, in consequence of their surface manufacture as well as through being either too coarse or too sappy. The slabs which come off hewn logs that are required to have sawn sides are valueless, and are not therefore as a rule sent with the sawn logs, but are retained at the sawmills at the timber ports, and there used as fuel. The advantage, therefore, that architects can confer upon builders by specifying their beams to be of "equal sizes," is very apparent. Architects should also take care never to specify their beams to be of longer length than is quite necessary (*i.e.* when the lengths exceed, say, 20 ft. to 25 ft.), because the price of log timber per foot or load is largely regulated by the cubical contents of each log; it advancing in proportion just as the cubical contents of each log increase.

The same remarks apply, of course, equally to the size of the beams as to the lengths. Pitch pine is the cheapest and the safest wood to specify for beams. By the safest we mean that, it being a wood of more uniform quality than the others, it is more likely to be secured free from sap, knots, and shakes. We do not refer to its relative strength, tenacity, or durability, which, of course, is another question altogether.

The main sizes in which sawn deals and boards are shipped to us are as follow, and we place them in a tabulated form for the more convenient reference of architects. They are:—

4	by 12	inches.	2	by 6	inches.
4	,, 11	,,	2	,, 5	,,
4	,, 9	,,	1½	,, 7	,,
3	,, 11	,,	1½	,, 6	,,
3	,, 9	,,	1¼	,, 7	,,
3	,, 9	,,	1¼	,, 6	,,
2½	,, 7	,,	1	,, 7	,,
2	,, 9	,,	1	,, 6	,,
2	,, 7	,,	1	,, 5	,,

There are other sizes of sawn wood that are also fairly common, but they come forward in smaller quantities than do the sizes we have enumerated above, and, as a consequence, they are somewhat more difficult to meet with, although, as we shall presently point out, they are, because less frequently called for, sold at a cheaper rate. We do not, however, on this account advise architects to specify their use, because should special lengths be required the builder may have great difficulty in meeting with the lengths. What may be termed as the second category of sawn wood consists of the following sizes:—

4	by 8	in.	2	by 4½	in.
4	,, 7	,,	2	,, 4	,,
3	,, 12	,, and up.	1½ and 1¼	,, 9	,, and up.
3	,, 10	,,	,, 1¼	,, 8	,,
3	,, 8	,,	,, 1¼	,, 6½	,,
2½	,, 9	,,	,, 1¼	,, 5½	,,
2½	,, 8	,,	1¼	,, 4½	,,
2½	,, 6½	,,	1¼	,, 4	,,
2½	,, 6	,,	1	,, 11	,,
2½	,, 5½	,,	1	,, 9	,,
2½	,, 5	,,	1	,, 8	,,
2	,, 8	,,	1	,, 6½	,,
2	,, 6½	,,	1	,, 5½	,,
2	,, 5½	,,	1	,, 4½	,,

Further than the above there are what in the timber trade are termed "off sizes," that architects need not, however, take cognisance of, inasmuch as they come forward only in very small quantities.

We are convinced that true economy will be attained by specifying the standard sizes that are enumerated in the first list, because by specifying those sizes builders will have the opportunity offered to them of the cheapness which is always to be found in the competition that a large stock to select from affords.

The question of economy as to building woods involves many considerations.

It has often, as a case in point, been discussed whether broad or narrow flooring-boards are the most economical at their respective prices. 1-in. by 7-in. may be taken to be one of the standard sizes of flooring-boards. As 7-in. is a well-known width, there is a great demand for it, and in consequence it is the most expensive width, although a narrower board costs more preparing per square or per standard. The usual difference in price between a 1-in. by 7-in., and, say, a 1-in. by 5-in. flooring-board, ranges from 20*s.* to 25*s.* per standard, or 1*s.* to 1*s.* 3*d.* per square. Against this, the saving in the first cost of a 5-in. board, however, comes in, and the way losses, which do much towards lessening, if, indeed, they do not fully reduce, the first apparent difference of cost. There is a loss of wood of from ¼-in. to ½-in. upon each 7-in. board laid down to make a floor, and of course, there is precisely the same loss incurred in each 5-in. board. Thus, reckoning the loss at the lowest estimate of half an inch, there is a loss of a tenth incurred in using a 5-in. board as against a loss of only a fourteenth in using a 7-in. board. As a matter of fact, the English planing-mills nearly always take off at least five-eighths of an inch when tonguing and grooving flooring-boards. In planing American spruce boards, which are rarely parallel, this may be a necessity, but it is not a necessity, as a rule; and, as a piece of advice to builders, we would suggest that, when ordering their flooring-boards, they demand that not more than half an inch of wood shall be wasted in the tonguing and grooving, which, indeed, should be abundantly sufficient. The loss of wood, however, incurred in using narrow in place of broader boards is not the only expense necessitated. It takes just the same number of nails to fasten down a 5-in. board as are required to fasten down a 7-in. board, and so the cost of the extra nails required for the 5-in. boards represents an additional cost in that particular, and seven required for the broader, as against five only wanted for the narrower size. Then, of course, the labour of driving home the nails must be divided in the same proportion.

Doubtless, a 5-in. board is somewhat lighter to handle than is a 7-in. board, but practical men tell us that it takes really the same length of time to lay a 5-in. as it does a 7-in. board. Whether this is exactly the fact may be doubted, but, at any rate, the difference does not appear to be appreciable. It is quite certain, however, that a floor made of 7-in. boards can be laid down in much less time than can one made of 5-in. boards. Thus to rank as against the saving in the reckoned price of 20*s.* to 25*s.* per standard, or 1*s.* to 1*s.* 3*d.* per square, in the using of 5-in. boards, there is, firstly, the loss of wasted wood by the increased number of joints; secondly, the cost of the extra nails, necessitated by the increased number of boards required to cover the same space; thirdly, the extra labour necessitated by the handling of the greater number of boards, and the driving home of more nails. Farther than this there is the finishing off of a larger number of joints. On the whole, it may be taken that the saving of 20*s.* to 25*s.* per standard, or 1*s.* to 1*s.* 3*d.* per square, does not cover the loss, and also pay for the extra labour which the narrow boards necessitate. It would seem that a margin in price of something like 40*s.* per standard, or 2*s.* per square, would be required for the purpose. Of course, the narrow board supplies a better floor, but we have been considering the question of cheapness only, which is often the main consideration.

Four-inch deals are more costly than are 3-in. deals, because there are fewer of them to be got. It will be readily enough understood that it requires larger and better trees to cut 4-in. deals from than are required for the making of 3-in. deals, and thus the larger deals are less plentiful. Descending the scale, we find by the same rule that 3-in. by 11-in. and 3-in. by 9-in. deals are more costly than are 3-in. by 7-in. and 2½-in. by 7-in. battens.

The difference in value between deals and battens of carpentry-quality ranges usually from 15*s.* to 20*s.* per standard, or from 10 per cent. to 15 per cent. The term "deals" is applied to any sawn wood that is 3 in. or 4 in. in thickness and more than 7 in. in width. The term "battens" is applied to any sawn wood that is 2½ in. and not more than 3 in. in thickness, and that is 7 in. and under in width.

Sawn wood that is less in thickness than 2½ in. is termed "board." Small stuff of square or nearly square sizes is termed "scantlings." "Timber" is a term applied *only* to logs.

It is worth while for architects to give their passing attention to these remarks, as the terms "timber," "deals," "battens," "boards," and "scantlings" are frequently more or less misapplied by them.

A correctness of definition on the part of architects when specifying the materials they require to be used is likely to give to the builder confidence in their ability and general knowledge, and so they will be likely to take fewer liberties with them.

Inasmuch, as we have pointed out, that battens range in price from 10 per cent. to 15 per cent. less than deals, it is obvious that economy is insured by architects specifying their spars and other "scantling" sizes to be of such dimensions as can be symmetrically cut out of battens, instead of, as they are usually specified, such sizes as can only be got out of deals.

A saving of 10 to 15 per cent. in any one item is no little matter.

Economy in building, it will be admitted, is to be made up only by the savings extracted out of a number of items. It is not possible to largely reduce the cost of any particular material without too injuriously affecting its worth. Intelligent economies, however, may be practised in a thousand and one cases, and it is to the minute economies that are to be attained in the intelligently using of wood that these papers hope to usefully direct attention.

Allied with this desire is the wish to convey to architects a better knowledge of the building woods of commerce generally. With the ever-varying conditions of the wood markets, architects have little or nothing to do. They have, indeed, not sufficient time to bestow in that direction. It is to be expected of them, however, that they shall make themselves acquainted with some of the everyday terms of the trade, so that when using those terms as definitions they shall employ them in their proper and understood sense. In our next paper we shall give tables and rules for basing calculations upon that will be of material assistance alike to architects, builders, and others who desire to estimate the cost of the woodwork of buildings. In addition to these tables and rules, we shall give a number of notes relating to wood and wooden articles used in building that have been compiled during a long experience of the trade.

THE DELTA OF THE NILE.

THE society we have already noticed in these columns as formed for the purpose of exploring the Delta of the Nile, amply shows, by the names of those who have given the project their approbation, the wide-felt sympathy that is entertained for the scheme.* To Biblical students the interest attached to the land of Goshen, which it will be one of the first duties of the new society to explore, it is needless to dwell upon; while to Egyptologists the promise of discovery held out is perhaps even greater. The interest we feel in Egypt is one that from our earliest childhood is fostered by our Biblical studies; long before the history of our own country has assumed for us any definite existence, the whole story of the Egyptian sufferings of the Jews and their deliverer Moses is familiar to us in almost every detail. But though this for generations has been the case in all Christian,—even Israelitish,—countries, it has been left, by a curious series of circumstances, to our century to explore the land of the Pharaohs and its wonderful monuments. Biblical history has assumed a new aspect from the light thrown on its incidents by the discoveries in recent years in the land of the Nile and the neighbouring Assyria and Palestine. A fresh departure is now to be taken in the projected exploration of the Delta and the land of Goshen, the scene of the sufferings of the descendants of Joseph's brethren, the Israelites whom Moses, from this very spot, led forth from captivity and cruel bondage to the Promised Land.

The labours of the new society will not, however, be limited to the exploration of the land of Goshen, though its work will be strictly confined to the district of the Delta of the Nile, "the Delta" *par excellence*, the triangular slip of land which lies between the two principal branches,—the Rosetta branch and the Damietta branch,—into which the Nile at its mouth divides to flow into the Mediterranean. It was

* The outline of operations, as now prepared, has received the approval of the Archbishop of Canterbury, the Bishops of Bath and Wells, Durham, and Lincoln, the Chief Rabbi, Archdeacon Anson, Mr. Robert Browning, the Earl of Carnarvon, P.S.A., Canon Cook, the Dean of Manchester, Miss Amelia B. Edwards, Mr. A. W. Franks, V.P.S.A., Professor Gardner, Hon. and Rev. E. Carr-Glyn, Miss J. E. Harrison, Mr. B. V. Head, Professor Huxley, F.R.S., Mr. Constantine Ionides, Mr. Stanley Lane Poole, the Right Hon. Sir A. H. Layard, G.C.B., Professor Legros, Sir John Lubbock, M.P., Sir Theodore Martin, K.C.B., Professor Max Müller, Mr. A. S. Murray, Mr. John Murray, Mr. R. Naville, Professor Newton, C.B., Professor Owen, C.B., Mr. R. A. Proctor, Mr. Reginald Stuart Poole, Professor Sayce, Hon. J. Villiers Stuart, M.P., Mr. W. Spottiswoode, P.R.S., Mr. Terrien de la Conperie, Rev. G. H. Tomkins, and Sir Erasmus Wilson, LL.D., F.R.S.

from this, its triangular shape, resembling the Δ of the Greek alphabet, that the Delta obtained its name, one now given geographically to the mouth of any river which may be divided into several branches. Originally the Nile flowed into the Mediterranean by seven distinct channels,—

"Et septemgemini turbant trepida ostia Nili."
VIRGIL, "Æneid," vi. 800.

Traces of these seven channels still remain, but the neglect of centuries has long since choked their courses, and the river which once fertilised a huge area now rolls its chief bulk along two branches which form the upright sides of the Delta triangle. Nothing but the ruins which mark the sites of former cities and a few artificial mounds raised for purposes of protection against the annual inundations of the Nile, break the vast flat plain of the Delta. In parts the district is extremely fertile, and the few populous towns naturally cluster in this portion of the province, which within a few years past has been supplied with a railway running between Cairo, Alexandria, and Damietta.

Comparatively speaking, the Delta remains unexplored, the ruins of cities once famous and thickly populated lie untouched, their sites in most cases satisfactorily identified, only awaiting the vivifying research of the archæologist. Nearly half a century ago Sir Gardner Wilkinson expressed warmly his regret that "this part of the country" should have been "so little examined, especially as some light might possibly be thrown on the remains of a very interesting period." Though the late Mariette Bey did some years since conduct a series of excavations in portions of the Delta, at Tanis or Zoan, and elsewhere, it has, it may be said, been left to our generation to systematically commence the exploration of a district of Egypt which is known to contain the most interesting archæological and historical remains.

The information to be gathered respecting the Delta is not very abundant, a fact arising from the very neglect which the new society proposes to remedy. The interest connected with Egypt has centred of late years more on Central and Upper Egypt, where so many marvels have been unearthed. Some facts, however, relating to the Delta are obtainable, chiefly from foreign sources. It may serve to show how small has been the attention paid to this interesting district that perhaps the fullest account of its ruins is to be gathered from the series of volumes,—well known to all Egyptologists,—published early in this century, and bearing the general title of "Description de l'Égypte," chiefly formed of reports and papers made in Egypt during and after the famous French expedition under Napoleon, in which Nelson so distinguished himself. On this score alone the Delta is endeared to every Englishman from the remembrance of our naval hero's celebrated exploits at Aboukir. Further information respecting the Delta is to be obtained, of course, from the stock Egyptian sources of reference, among which should not be neglected Sir Gardner Wilkinson's "Topography of Thebes, and General View of Egypt," published now hard on half a century since (London, 1835), but re-formed into Murray's excellent Handbook, of which a new edition was published in 1880. The volume on Egypt by the distinguished German archæologist, Georg Ebers (Ægypten in Bild und Wort"), only completed last year, will also be found to supply much interesting information, placed within the reach of English students by the translation by Clara Bell, published by Cassell. A French translation, from the authoritative pen of M. Maspero, was one of the artistic publications of the last Paris season.

From these sources we are able to gather a sufficiency of information to enable us to form some idea respecting the scene of the proposed labours of the new Delta Exploration Society. The mounds of ruins that are scattered over the vast district have in most cases been recognised; they alone await excavation. Doubts, of course, exist regarding many points; while unlooked-for discoveries cannot fail to be made. The respective sites of Sais, of Tanis, of Busiris, of Sebennytus, and several other of the great cities of the past, have been determined beyond dispute, and many interesting discoveries await the excavators in these quarters; but it is chiefly in the ruins so far left undisturbed that the greatest hopes are centred. Who can foresee what may be brought to light, or what extraordinary "find" may not be made? The so-called "land of Goshen" cannot fail to yield the most interesting relics of the distant time when the Israelites were in bondage.

At present, however, as we have above remarked, our stock of positive information is but scant. We know from Greek and other authorities that the Delta, till comparatively recent times, was thickly inhabited; its cities wealthy and famous; ruins and a few mud-huts only now mark, in most cases, the site of their once-thriving centres of population.

Sais, which it is almost at once proposed to explore, was, among the cities of the Delta, one of the most important. In the modern Arab village of Sâ el Hagar,—Sâ, the remains of the original name, El Hagar, given it in consequence of the stones that surround the town,—there is every evidence that it occupies the site of the great city of which Strabo has left us such a detailed description. The ruins lie within a vast inclosure nearly 1,000 yards long by about 800 yards broad. This is all that marks the site of the once brilliant residence of the Pharaohs, the learned city in which flourished the famous school scarcely less celebrated in Greece than in Egypt, to which Herodotus specially travelled, where Solon learned of that mystic Atlantis far out in the west with which Plato has puzzled till this day the learned and the inquiring. It was from Sais, too, tradition asserts that started, under the guidance of Cecrops, the colony that was to found Athens; on this score alone, an interest is attached to these ruins which few cities in the world can rival. Readers of German current literature will doubtless recall Herr Ebes's historical romance of "The Daughter of Pharaoh," in which the eminent Egyptologist endeavoured to picture in the days of its building the once wealthy city of Sais;* but of its past nothing now remains but a terrible ruin; when, some years ago, Mariette Bey attempted a series of excavations his task, he found, was almost hopeless. Of all the marvels described with such detail by Herodotus and Strabo, scarcely a vestige, on this preliminary examination, could be found. The text of Strabo is so precise as to fix to a certainty the site of Sais. Herodotus, without stating its position, gives us, however, a lengthy account of the city at the time of his visit (Book ii. of his History).† He describes the superb royal palace, and the temple of Minerva, one of the most magnificent in Egypt, and in which was the tomb of Osiris. It was to Amasis, during his long and prosperous reign (about 570 B.C.) that the temple, dedicated to the goddess Neith, owed its chief architectural glory. The portico surpassed in size all similar works in existence; Herodotus speaks of a colossus, 75 ft. high. The huge stones used by Amasis came in part from the quarries of Memphis, in part from those of Syene; obelisks rose before the temple, near which lay the huge circular basin or holy pool on which were celebrated at night the mysteries of the deities, Isis and Osiris. The interior of the temple was scarcely less magnificent, but its chief marvel was the monolith chapel. In the removal from the quarries of Elephantis of this enormous block of stone, the weight of which we may calculate from the measures given at some 500 tons or more, 2,000 boatmen were employed during three years. But of all these marvels and many more, the late Mariette Bey during his excavations discovered only unrecognisable ruins; further and more systematic research might, however, reveal something of all this past grandeur in spite of the fact that the ruins have been used as a quarry to build up Alexandria and other more modern cities.

Naucratis (another of the cities to be explored), from the text of Strabo, we conjecture lay not far north of Sais (Book xvii.). It is described by the classic geographer as lying on the left bank, ascending the Nile, and is mentioned by him just before Sais. The modern village of Dessouk seems to answer to this description, though MM. Du Bois Aymé and Jollois, in their stay on the Delta at the close of the last century ("Description de l'Égypte," vol. v.), in describing Sais, state that though the position of Naucratis seemed well defined, they found no traces of any ruins that could be taken as answering to the site of the once flourishing Greek city,—a fact, however, at which they expressed no astonishment, recalling as they did how very different and far less substantial was the mode of Greek building. The respective positions of Sais and of Naucratis given by Ptolemy coincide with that given by Strabo. The modern belief, as supported by Ebers, is that the existing village of Dessouk probably occupies the site of Naucratis, a city which we know was the precursor of Alexandria, the only city in Egypt in which the Greeks were permitted to settle and to carry on their trade. The city was, in fact, a thorough Greek colony, which led an ultra Greek life, being famous in antiquity for its flowers and its beautiful women.*

Besides Sais, the Delta contained many important cities, the sites of which are now only marked by ruins. Not far from Sais, but further south, lie the mounds which cover the ancient city of Sebennytus, the modern Semmenoud, at present a comparatively active commercial centre. Near to Semmenoud lie other ruins which the archæologists have recognised. To the north stretch a series of mounds near the village of Bahbeyt. The heaps are of a quadrangular form, some 80 yards long and about 20 yards high; the material is of crude or unbaked bricks, forming a large enclosure, within which is scattered a confused mass of ruins, architectural details, and bas-reliefs, chiefly of granite from the distant quarries of Syene. To this fact MM. Du Bois Aymé and Jollois have drawn especial attention, as showing the extreme care taken by the Egyptian builders in the past to ensure the stability of their work. They were fully aware that only granite would be able to resist the effect of the sea air; no difficulties seemed capable of daunting these marvellous builders, and only the hand of nature,—some terrible earthquake,—can have overthrown these ruins, the interest of which, from all accounts, would seem very great. The same competent authorities we have above mentioned, who devoted some attention to these ruins, speak of meeting here with no instance of monolithic columns of Egyptian origin. They seem all to have been built up in drums. The monolith column was a foreign importation, as we see in the so-called Pompey's Pillar at Alexandria.

Among the other important ruins of the Delta, so far recognised, may be mentioned those of the ancient city of Bubastis, the modern Tel-Basteh, and referred to in Scripture, in Ezekiel. The prophet's dire prediction did, indeed, come to pass, and by the vitrification of some of the existing stones it is evident that the city was destroyed by fire. Nothing remains of the temple, the elegance of which Herodotus praises as surpassing that of any building in the world. Ebers found here (see his "Ægypten") some years since, two images of the cat-headed goddess, the celebration of whose mysteries Herodotus speaks of in detail. To Bubastis were sent all the embalmed cats of Egypt.

At Menoof the modern city is built on the remains of an older city, the antiquity of which is known to be very great. MM. Du Bois Aymé and Jollois suggest this as the site of the classic Nicii. Near Menoof, at Chybyn-el-Koum, the same authorities speak of a mass of *débris* which they believed to mark the site of the city of Atarbechis, referred to by Herodotus, and by Strabo as Aphroditesopolis. Near Melyg also are noticed as existing a series of important mounds of crude bricks, perhaps the remains of the city of Byblos. At Bousir other ruins are noticed by travellers as surrounding the village, the modern name of which would point to this being the site of the city of Busiris, in which, according to Herodotus, there existed a large temple consecrated to Isis.

Among the ruined cities of the Delta, mention of Tanis, the modern Sân, the Zoan of Scripture, should not be overlooked. It lies near the shores of Lake Menzaleh, on the eastern side of the Delta. To Tanis more than usual interest is attached; its antiquity is great. Its position in Scripture is familiar to every Biblical student. At the present day the ruins for miles round are the most conspicuous feature on the flat plain. The space of ground they occupy is remarkable, some 200 acres or so, but scarcely one stone has been left on another to tell the tale of the grandeur of a city that was antique even in the days of Moses. We may look upon Tanis as indeed the scene of much of the misery of the Israelites when they were in bondage; the huge enclosure

* There exists, it may be mentioned, an English translation of this novel, published among the German authors of the Tauchnitz collection. The English version is entitled "An Egyptian Princess."

† Herodotus, the oldest of the Greek historians, the "Father of History," was born, on the authority of Lemprière, 484 B.C. Strabo, it must be remembered, wrote about 460 years after Herodotus.

* Ebers states that the city was probably more towards the west than Dessouk, "but where, it is difficult to decide." (See p. 83, Maspero's translation, "L'Égypte," 1881.) It is worthy of mention that MM. Du Bois Aymé and Jollois were told, at Dessouq, of "ruins lying at Koun Fura'oun."

wall was in all probabilty one of the forced labours of the unfortunate bondsmen; the unbaked bricks are the same as described in Scripture, bound together with chopped straw. We are here, in fact, in the land of Goshen, and we may look on Tanis as the scene of Moses's early efforts to free his captive countrymen. The capital from which the province allotted to the race of Joseph took its name of Goshen was called Pa or, Pha-kos, and was known to the Greeks as Gosen; near the modern village of Fakous lies a series of mounds covering ruins, among which Ebers found the name of the great Pharaoh, the oppressor of the Israelites. To return, however, to Tanis. Ebers speaks of the extraordinary appearance of the ruins. "Many cities and temples have left more considerable remains, and in better condition, but none, surely, are more picturesque." It is only at Thebes that so many monuments built in granite could be found; but none are in such condition as to allow of a plan being made. The huge sanctuary erected by Rhamses II., the great Pharaoh of Scripture (about 1400 or so B.C.), has sunk in.* Each epoch of Egyptian history, except the oldest, has, we are assured by Ebers, left its trace in Tanis. The fall of the great city, now situated in a deserted plain, is only comparatively recent. Ptolemy, Pliny, and Strabo all speak of it. After the establishment of the Christian religion it was the seat of a bishopric, and the see was occupied till the eleventh century; its name is last connected with history in the story of the Crusades. From that time we hear nothing more of Tanis. The sea was allowed to creep over the fertile plain, and form the existing lake Menzaleh, which it has been said by the engineers could, with the modern means at our disposal, be again dried. Perhaps the newly-constituted Société des Études du Nil will take up the question. On the site of Tanis itself excavations have been made; but the greater part of the ruins still remain buried in the sand, jealously guarded from any foreign research. Perhaps, as Ebers has suggested, the Government have not yet recovered from the annoyance they suffered at the fortunate discovery made, not so long since, by Lepsius, who, poking about in the sand, laid bare a monument now in the Boulak Museum, and well known to Egyptologists as the Stone of Tanis, or the Decree of Canope. But is sincerely to be trusted that the society formed for the exploration of the Delta may meet with many similar pieces of good fortune. The task they have before them is no light one, but they may set to work with the inspiring reflection that the interest and good wishes not only of their country, but of both hemispheres, will follow them in their arduous labours.

THE INSTITUTE OF PAINTERS IN WATER COLOURS.

THE present exhibition is, we believe, the last which the Institute will hold in the rooms they have so long occupied in Pall-mall; after this year their exhibitions will be continued, it is understood, in the new premises in Piccadilly. Some of the leading members are very well represented in this exhibition, the forty-eighth of the annual spring exhibitions of the Institute. Mr. J. D. Linton sends but one work, a single figure, "The Lute" (58); but this, though in one sense not so interesting as some of his highly dramatic scenes in which several figures are introduced, is, nevertheless, in his finest style. It is a three-quarter length of a lady in a dress of warm-toned and rather subdued yellow, approaching orange, with an ample crimson sash round her waist, holding a lute, on which she is playing. The face, very finely painted, is sad and subdued in expression. It is one of those figures which are not the less interesting and suggestive because, in regard to its intention, much is left to the imagination of the spectator. In rich harmony of colour, it is one of Mr. Linton's finest productions. Among other figure pictures, which are not so numerous as this class of subject generally is in the Institute Gallery, Mr. Towneley Green contributes two, of which No. 167, "The Autocrat of the Breakfast-table" (a small child to wit), though showing the artist's usual excellence of execution, is not of much interest in subject; but the other, "Old Prints" (11), is beautiful. It is an interior, with a single figure, a lady, looking over some prints from a portfolio. It has the merit of complete realism without a touch of hardness. The sleeping dog, the quaint Queen Anne fireplace, the screen, and other details are all perfectly given, and blent into one rich but subdued harmony of tone. Mr. C. Green's "Summer Goods" (22), a shop scene in the days when young ladies hid their faces at the back of a long funnel called a bonnet, is also very clever realism, but a trifle hard and sharp, not toned into the pictorial beauty and completeness of the last-named work. Mr. Percy Macquoid's "Iconoclasts" (131), is a charming little work, although very slight in subject: an interior with two figures, children, of whom the boy, we regret to say, is firing pistol-shots through an old stained-glass window. Such clever execution, and such admirable effect of light, might well have been bestowed on the elucidation of some more interesting subject. Mr. Henry Stock's "Aspiration of a Soul while listening to Music" (184), is an ambitious and not quite successful attempt. The "soul" of the man who is listening is too heavy and solid-looking an angelic figure to compel our belief in its spiritual essence; it seems rather like a third visitant in the room. This is a kind of attempt which, we imagine, must depend for its success very much on the mood of the spectator. It is too much like the attempt to paint a thought in visible form; but there is fine colour and feeling in the drawing. Mrs. Elizabeth Murray's "Boys' School in Algeria" (78), and Mr. C. Green's "A Talented Troupe" (65), are both clever pieces of humour, in very different styles; and Mr. R. Caldecott sends a very interesting and unusual sketch of a scene at Florence,—"The Brotherhood of the 'Misericordia' taking a Patient to the Hospital" (39),—unusual both in its tones and in the curious character and dress of the actors in the scene.

Among landscapes, Mr. Keeley Halswelle has achieved a marked success in "The River below Sonning" (75), a landscape with heavy overhanging clouds, and the quiet Thames in the foreground, in which breadth and delicacy of execution are most happily combined. This is not disfigured by the sombre and rather "dirty" tones which have characterised the painter's larger landscapes in the Academy for the last two or three years, but is bright and fine in colour. Mr. Orrock's "In Charnwood Forest" (72) is a very fine and boldly-handled study of a foreground of trees with a long stretch of country beyond; the varying tones of the foliage have been very carefully studied. There is a little too much leaning to roughness of execution in such drawings as Mr. Collier's "Under the Crag" (157), and Mr. Mac Whirter's "Lake of Menteith" (152); in the latter there is something like a new effect in the manner of rendering nearly calm water under sunlight, but it is a little tricky in manner. Mr. H. G. Hine exhibits the opposite qualities of calm repose and delicacy of execution in his beautiful view over the "Downs near Lewes" (145). Mr. Fulleylove's various classic garden scenes in the environs of Rome are hardly so effective and finished as others by which he made his reputation for this class of subject; they seem rather too numerous and painted too fast; he contributes a good small-sized view of the interior of St. Mark's. Mr. Aumonier is seen to advantage in a scene very different from those which he usually paints, representing "An Old-fashioned Garden" (32), with great masses of sunflowers rising in the midst of the lawn; the one fault of the picture is the want of light in it, or rather of the shadow without which the presence of light is not appreciable in a painting. The same defect mars the largest and most elaborate of Mr. Elgood's studies of old houses and their environs (40); there is positively no light in this; no distinction in tone between the sides of the house which face different ways; the sun has gone out of the heavens. We draw attention to this because there seems to be a growing tendency to this omission of light and shadow effect among a good many painters. Mr. Elgood's smaller work, "The Farewell" (54), is much superior to the larger one. Mr. Wimperis's "Wooded Valley" (61) shows much of his usual good qualities, but the wooded hill in the middle distance is too roughly handled, losing the sense of scale; the trees rather suggest the idea of bushes than large trees. Mr. Joseph Knight's "Spring" (189) is a fine fresh piece of spring verdure, in which the artist has not been afraid of green. Mr. Harry Johnson's "Prehistoric Stones" (44), a view of Stonehenge by moonlight, rather exaggerates the scale of what are irreverently called in the neighbourhood "the stwuns," but it is a very carefully elaborated effect. There are other good bits of landscape in the gallery.

* An Arab legend relates that the Pharaohs were giants who, with a wave of their magic wands, knew how to raise huge masses of rock.

GATHERINGS FROM ABROAD.

THE difficulties attending the overcrowding of our cities in the present day, it seems agreed, can alone be solved by the supply of cheap and easy means of transit. The owners of "real estate," as we see in London and New York, and where not, find it their interest to favour any spread of railway, omnibus, or tram which may bring the outlying districts of our great cities within easy distance of the business centres. The Elevated Railroad of New York has proved not only commercially successful in itself, but has, as was expected, largely influenced the value of property "up-town" (previously only accessible with difficulty from Wall-street), to the injury, it is true, of the older neighbourhoods. The suburbs of London and all our great cities owe their existence to the increased means of communication which have been afforded of late years by the extension of tram and railway lines. And now we hear that our Parisian neighbours are not content with their means of urban and suburban locomotion, and in spite of their well-organised omnibus and cab system, they are seriously thinking of a Metropolitan Railway in the style of ours in London. The scheme, which is no new one, has been elaborated, and we learn that it has been brought to the attention of the Municipal authorities. It is suggested that there should be five lines from various points outside Paris to certain populous centres within the walls. Without enumerating the details of each of these, it may be sufficient to notice that one of these, leading to the Halles Centrales, or Central Market, will be of the utmost use, relieving the streets of a large amount of heavy traffic. The longest stretch of tunnel without light is one of 2,275 mètres. Unlike our own metropolis, the two banks of the river will be put in communication by the system. A concession of ninety-nine years is demanded, the first line to be opened within a delay of three years, and each of the others at intervals of two years. The maximum fares would be 20 centimes and half a franc, there only being two classes, but workmen's trains would be run at fixed hours. The carriages would be of the American pattern. The cost of the total network, over 50,000 yards, is calculated at some 150 millions of francs, or 6 millions sterling. The scheme only awaits sanction from the proper authorities to be set on foot. It will, we may be sure, receive warm support from the owners of property in Paris, more especially as of late there has been no small talk of demolishing M. Thiers's famous line of fortifications which hem in the city and confine the population, but we may be sure so serious a step as this will not be taken without mature consideration.

As for the Berlin Metropolitan Railway, or *Stadtbahn*, which has recently been opened, not sufficient attention has been drawn to its real object. It has been regarded, of course, as a municipal improvement; in reality, however, like so many of the great works in Germany, its military importance and utility have been as much considered as any other point. The line singularly assists the transport of troops, avoiding the changing from one terminus and marching through the town to another. The new Berlin Metropolitan Railway, which, it may be mentioned, is not underground, but runs on arches, is however, in times of peace, of great service to the inhabitants, and every consideration has been given to their comfort and convenience. The arches of the line have been most skilfully utilised and let out for shops, and we hear of a most successful *Bier lokale*, built *in Altdeutsche stil* with wooden panellings, &c., in the most approved modern German fashion, having been already opened.

Rapid means of communication seem the great want of modern existence. A French engineer has recently submitted to the Paris municipal council a scheme by which he claims he has solved the difficulty with a saving in expense of 80 per cent. over existing systems, a greater regularity ensured, and accommodation provided for ten times the number of passengers at present carried. His system consists of a species of elevated railroad, affording for foot passengers a covered way and a protection

against the weather, while leaving the road free for the circulation of carriages, &c. The movement of the omnibus, a long saloon carriage, would, if we understand the system correctly, be directed by means of an endless chain. A speed of something like six to seven miles an hour would thus be ensured with the means of carrying during that time at least 20,000 passengers. The idea, we are disposed to think, will scarcely recommend itself to the municipal council of Paris.

That the belief that all our American cousins care for is the practical is incorrect has long been known to a few. It is, however, not a little interesting to hear of Americans offering not only to subscribe the necessary sums for the completion of the memorial window to be erected in Westminster Chapter-house to the late Dean Stanley, but proposing to do the work themselves. "Why should not the Stanley Memorial Window which America will present to Westminster Abbey be made as well as paid for here?" asked the New York *Critic* not long since. "The art of making stained glass is one of the few in which America can justly claim superiority over the Old World." Every one familiar with what of late years has been done in New York and Boston particularly, to encourage the decorative arts, will understand this otherwise apparently boastful statement, while English readers interested in the subject of decorative art have been singularly neglectful if they have not seen in the pages of the two illustrated American magazines, which have now taken their place among our English publications, enough to lead them to believe in the assertion. At any rate, the glass cannot well be worse than much that is set in England.

As pertinent to the subject of art in America and also in England, the remarks of our contemporary *L'Art*, on the recent publication of the sixth annual volume of the "American Amateur," are not uninstructive. After a suggestive reference to the too general ignorance existing in Europe of the great art movement which is at work on the other side of the Atlantic, our French contemporary draws attention to the active popularisation and propaganda of art and art-teaching in the United States. "It is one proof more of the enormous effort made in America to favour the diffusion of artistic knowledge. This movement has already borne its fruits. It is an indisputable fact that at the present moment all the important artistic publications have far more subscribers in the United States than in England, where," remarks our contemporary, "the tendency of our neighbours to be more or less unconsciously carried away by the great results they have already obtained is each day becoming more manifest. Now this is a fatal tendency. It is only by establishing points of comparison with what foreign nations are doing that our neighbours can continue the progress so far successfully realised,—progress, however, which still has need of wider development to attain the results aimed at. One thing is certain, the movement must be slow. Advance in art matters and in the improvement of taste cannot be made by giants' strides; of all plants taste is the most delicate to nurture and acclimatise."

The restoration of the quaint Loggia del Bigallo, which every one who knows Florence will remember at the corner of the busy Via Calzaioli, under the very shadow of Giotto's Tower, and in the immediate neighbourhood of the Baptistery, is by this time completed. The beautiful piece of thirteenth-century work, the design, it is said, of Nicolò Pisano, had fallen into a sad state, though we learn that some twenty or so years since it was restored. The old lines have, of course, been strictly followed, and certainly in Florence, where the Bargello has been so skilfully recovered from the terrible condition in which it had been allowed to fall, the restorers may be trusted. Professor Castellazzi has directed the work. The frescoes by Gaddi have been also re-touched. It is, perhaps, a matter for congratulation that circumstances prevented the restorer,—as was originally intended,—carrying out, in addition to the necessary repairs, the original intention of the plan, as he conceives it, of Nicolò Pisano. What the result might have been we are, of course, unable to say, but we repeat there is no ground for regret that the Professor was unable to indulge in his somewhat dangerous theories. The restoration, therefore, is all that has been attempted; the rich marbles of the original have been carefully washed, and reappear in all their brilliancy, adding a fresh feature to renovated Florence.

Brittany has long been famous for its so-called Druidical remains; the district of Morbihan is scattered over with these Celtic monuments; they are, however, far from being protected from the Vandalism of the owners of the property on which they lie, and within recent years their number, considerable it is true, has been sadly reduced. Every archæologist, therefore, will learn with pleasure that one of the most interesting of these mystic monuments, the giant *menhir* of Locmariaequer, the largest known in the world, is now preserved for ever from the possibility of injury; it has been purchased and placed under the protection of the Commission des Monuments Historiques. The importance of this monarch of the Breton *menhirs* may be judged when it is stated that it is the height of the Luxor Obelisk in Paris (about 76 ft.); its weight over 250 tons. It is not, however, standing: it lies prostrate in four parts, and it is now proposed to restore it. When, we should like to know, are Stonehenge and the numerous other Druidical remains scattered over England definitely to be protected by legislation from possible injury?

THE PROPOSED IMPROVEMENTS AT HYDE PARK CORNER.

WE have received from a frequent contributor an article on the proposed improvements at Hyde Park-corner, written before the appearance of our remarks on that subject on April 1st. In the main, the view taken coincides with that we have before expressed; but our correspondent has given a quantitative analysis of the proportion of roadway to traffic, which deserves careful attention, as pointing out the principles on which it is necessary to make definite calculations when traffic presses upon space.

Our contributor remarks that the idea of a viaduct had occurred to him, but that he found considerable difficulty in the levels. The 40-ft. contour crosses Piccadilly at the corner of Park-lane. The 50 ft. and 60 ft. contours are crossed by the Park drive at 10 chains and 16 chains from the entrance-gate. The 30 ft. and 20 ft. contours cross Grosvenor-place at about 8 chains and 20 chains south of the Kensington line of road. Thus in 36 chains there is an ascent of 40 ft., which gives a gradient of 1 in 60, very nearly. As the Piccadilly line crosses this section at a level of from 40 ft. to 30 ft. above high-water mark (to which the above-noted contour heights are referred), it is obvious that it is about equally difficult to effect a crossing on another level above or below the present roadway.

We now let the writer speak for himself.

The plan proposed for removing the block of traffic at Hyde Park Corner is, at all events, not to be criticised on the ground of its timidity. It may, however, be inquired not only whether an unnecessary sacrifice of green turf has been demanded, but, moreover, whether the object aimed at would not be more certainly secured by a less drastic treatment. In face of the rapid and enormous increase of the population and of the buildings of London, every perch of grass-grown ground in such a spot as Hyde Park Corner has a value of no ordinary magnitude. To diminish a broad sweep of turf or shrubbery as little as possible is a *sine quâ non* condition of good design. Nor is it for a moment to be allowed that the creation of little detached gardens or shrubberies, of two or three perches area, can compensate for an equivalent destruction of unbroken park.

As to the principle of taking a slice from the north-west corner of the Green Park, we are at once prepared to accept it. But we contend that the public convenience demands two conditions. First, that the addition to the roadway shall be laid down on true stratigraphical principles; that is to say, it shall be so designed principles; that is to say, it shall be so designed as not only to accommodate the traffic as to actual volume, but so also as to avoid the creation of any cross-streams of traffic which it is possible otherwise to deal with; and, secondly, in thus doing, as little space must be deducted from the Park as can be arranged.

By the plan exhibited in the Library of the House of Commons, it seems that neither of these indispensable conditions is fulfilled. The quantity of land taken from the Park is about four acres, or 2·6 per cent. of the whole united area of St. James's Park and the Green Park. Against this deduction has to be set the creation of three little isolated bits of garden, containing, as closely as we can ascertain from the plan, 1 rood, 10 perches, and 4 perches respectively. The two smaller of these, at all events, would be little better than desolate dust-traps, and would be less ornamental than open space, with a fine bronze casting on a good pedestal on the site of each.

At the same time, we do not mean to assert that the sacrifice of four acres of turf would be too much to give for a complete solution of the problem before us. But we cannot avoid pointing out that this important question of the intersection of main lines of traffic has been quite overlooked by the advisers of the Board of Works. On the contrary, if the problem had been how to draw as many lines athwart one another as possible, it could hardly have been more efficiently carried out. Across Piccadilly, at the Park entrance and at Hamilton-place; across Grosvenor-place, at Halkin-street, and at Grosvenor-crescent; across the new road, from Hyde Park, and again from Grosvenor-crescent to Constitution-hill; are contrived six crossings at right angles, each of which must cause an alternate interruption of the traffic, which it is quite possible to reduce by at least one-half.

If the leading features of the case are regarded with a little exactitude, it will be seen that the course of traffic has not been studied. The width of Piccadilly immediately east of Hamilton-place is 53 ft., or six lines of vehicles and 5 ft. over. The width of Hamilton-place is 48 ft., or six lines of vehicles exactly. All streets, we think, ought to be arranged in widths of 8 ft., being about the space required for the passage of a carriage and pair at a good trot. Fractions of this width are objectionable, as tending to lead a driver to cut in where there is no through line, and thus to cause block. But as far as both the north and south, and the east and west, traffic at this spot is concerned, six lines of vehicles abreast in each direction is as much as can come on or go off the ground.

The Park gates give passage to three single lines, running north and south. The Knightsbridge-road is more capacious. But however the traffic may converge from west, south, and north, opposite the Wellington Arch, the limitation to six lines by Hamilton-place and Piccadilly is precise, and no increase of width to the west of this spot can increase the capacity of Hamilton-place and Piccadilly.

Now, to take the volume occupying this 96 ft. of useful, and 101 ft. of actual width, the plan of the Board of Works provides the unnecessary width of 140 ft. And we hold that it cannot be denied that to bring two roads of 70 ft. each (or of 64 ft. of useful width), to pour their traffic into two roads of 48 ft. each, is to provoke block. Again, the width allowed from Hyde Park Corner to Halkin-street is 60 ft.,—an awkward width of seven vehicles and 4 ft. to spare. Thus, whatever has been the principle on which the width of the new roadways has been determined, it evidently has in no way been proportioned to the largest possible volume of traffic that can pass through the neck.

In the next place, as before hinted, the intersections are aggravated instead of being alleviated. If the fence of the Park were set back from Hamilton-place to Halkin-street, so as to allow of a roadway of 96 ft. in width for the east and west line, and one of 64 ft. in width for the Grosvenor-place line, with a gentle rounding of the north-west corner, we are convinced that the coachmen would find such an arrangement far better than that now proposed, and the slice thus taken from the Park would be almost imperceptible.

It may be said that we have treated the question too much on geometrical grounds. Our view is, indeed, a mathematical one; but it is, notwithstanding, eminently practical. When there are plenty of space and plenty of time for coachmen to play with, it would be pedantry to map out the course of a gentleman's carriage in yards and minutes. But we have got beyond that in London. The art of driving through the crowded streets is one requiring a high order of practical excellence. The most famous Roman charioteers came, if we remember aright, from the Island of Capri, and wonderful feats of charioteering are still displayed by the Capri and Campanian drivers, who are not in the habit of putting bits into the mouths of their horses, but employ a curved bar outside the animal's nose. But a Neapolitan or Roman coachman would be utterly floored in London. His vehicle would be smashed before he had driven a mile in the high-tide of fashionable transit, and so serious is the question of block, that in any case of laying down a new street it

is essential to know beforehand what will happen. As the trains on trunk railways are laid down on accurate diagrams, so must the carriage traffic over fully occupied roads be, if we wish really to avoid block. Let any one who doubts our position count the carriages that pass within four or five hours backward and forward between the points we have indicated, as well as to and fro Hyde Park, from and to east and west. If he do not find mutual yielding,—that is to say, slackening of pace or actual stoppage,—to be now unavoidable, no case will be made out for driving a new road through the Park, but if he do, as, of course, he will, he cannot, so far as we can see, avoid the conclusion that this particular diversion of the cross traffic will greatly aggravate the mutual interference of the main streams of vehicles.

With extra but proportionate width of road,—the directions of the traffic remaining as at present, with the further advantage of removing the direct cross line from Park to Park,—all that can be done would be done, and done in the most available manner. The question will be put, Is it worth while to move the Wellington Arch for so short a distance as would be thus required? The reply is that it is proposed to move it under any circumstances, and that whether it is moved a longer or a shorter distance can only matter if we find ourselves able to introduce the American method of shifting the structure intact; in which case the less distance it is moved the better. As to this, however, we must call attention to the fact that the relative position of the two gateways is a matter of architectural harmony which ought not to be decided by mere rule of thumb. It requires careful consideration; and should be thoroughly studied before it is carried out. We must be permitted to question whether the oblique position of the arch with reference to all the other architectural lines in the vicinity which is indicated on the plan would have a good effect. May we add that if one result of any change is to give a more appropriate pedestal to the statue of the great Duke, this part of London will be relieved from a disgraceful nightmare?

In brief, then, we are prepared to admit that public convenience demands some sacrifice of the precious breathing space of the Green Park. But we think that an unnecessarily large sacrifice is made by the Board of Works plan. Even as to that, however, we should be disposed to be acquiescent if we felt that, from the coachmen's point of view, the gain to the convenience of the traffic was such as to counterbalance the loss. But we have regarded the subject from two points of view,—first, that of the surveyor; and secondly (and not without long experience in handling the ribbons), from that of the coachman. From both these points of view we are more than half-disposed to conclude that the block would be intensified rather than removed by the present plan, which, undeniably, is like pouring through a wide-mouthed funnel into a narrow-necked bottle. We hope, before 2·6 per cent. of the Park is sacrificed, that we shall, at least, have the assurance that the stratigraphical requirements of the spot have been properly regarded, and that it will not have been taken as enough to make roads 70 ft. wide running in every possible direction, but tending to an unavoidable throttle-valve.*

THE LATE MR. D. G. ROSSETTI.

THE death of Mr. Rossetti last week removed from among us a painter who held a very peculiar place in the world of recent English art. Practically unknown to a large majority of those who are interested in painting, he was extolled by a small esoteric sect of worshippers as the greatest painter of the day, and their praise, to some extent, raised around the painter's name a celebrity which was in great measure due to a faith, on the part of a certain section of the public, in the verdict of "critics" upon works which none but their purchasers and a few favoured friends had ever seen. Among the notices of the painter in the columns of daily papers we have observed expressions of surprise at the degree of fame which had been achieved by one who had appeared to shut himself out deliberately from ordinary modes of publicity. Such surprise we do not share, for a double reason. In the first place, the extent of the reputation which Rossetti really had achieved as a painter has been considerably exaggerated. His special worshippers, who knew and lauded everything he did, seem to have been, and still to be, under a kind of pleasing delusion that their idol was as well known to all, and as much worshipped by all, as by themselves. The fact is, that to a great number even of well-informed people outside of the esoteric circle referred to, he was only a name. On the other hand, we see no matter for surprise in the extent of the reputation which Rossetti did enjoy among a good many who had perhaps hardly seen his paintings. No doubt the usual and natural way to make a reputation is for a man to get his works before the world as much as possible. But the opposite plan, of refusing to let any one see them, while leaving it open to a circle of friends to talk about them as something very remarkable, has its practical advantages also, and is, even from the point of view of worldly wisdom, not a bad way of gaining reputation in a day when there are so many people with a taste for *caviare*. This, it appears to us, is a good deal what happened (whether by his own direct intention or not) in the case of Rossetti. His friends diligently assured every one that he was a very great painter whose pictures were quite beyond the understanding of ordinary people; and not unnaturally they found a considerable number who were quite willing to take rank as an intellectual aristocracy, by admiring, even if it were on trust only, what was so much above ordinary comprehension.

How far this, as it seems to us, factitious reputation, was accepted or approved by the painter himself, how far it is due only to the ill-regulated enthusiasm of partisans, we do not profess to understand. Our own opinion, based on the inspection of a fair proportion of Rossetti's works in private hands, is, that a very large discount must be made, and will certainly be made, whenever a general public exhibition of his paintings may be held, from the estimate made of his genius as a painter by those who seem to take pleasure in acting as his apostles. We cannot profess to extend our knowledge to his latest works, as, after one or two experiences, we may candidly confess that we never cared again to go through the ritual of adoration, which seems to be the price expected in return for the privilege of an inspection of the collections made by those who have been the principal admirers and purchasers of his works. But unless the style and the quality of Rossetti's art have been very materially modified during the last few years, we should characterise it as a style of painting combining, in the most singular and unprecedented manner, great power, brilliancy, and richness of colouring, with utter indifference to truth of form and apparently an almost phenomenal incapacity to draw,—phenomenal, that is to say, in the case of a painter with such remarkable power as a colourist. As far as we have seen them, Rossetti's figures, his women especially (he painted women much more than men), were in the first place, and apparently with deliberate intent, formed unlike natural figures; and in the second place, not unfrequently, he failed even to represent the attitude or the anatomical form which he seemed to have intended to represent; the foreshortening of an arm appeared to be a problem beyond him, or else deliberately contemned. In regard to the subjects and the aim of his art, he must unquestionably be admitted to have been a painter who aimed at the ideal, who wished to make his painting a form of poetry; and with such an aim in the abstract we should earnestly sympathise, more especially in view of the far too prosaically realistic tendency of much modern painting. But the ideal in art must be reached through, must be expressed in terms of, the real, so to speak. All our experiences are so closely bound up with the forms and processes and construction of nature, that it is to no purpose that a painter attempts to grasp at an especially ideal expression by neglecting, or, as he supposes, improving upon nature. This appears to have been the process, whether carried out with entirely deliberate intent or not, in Rossetti's painting. In fact, he acted tacitly on the principle which Fuseli openly and frankly professed, that "nature put him out"; and though he was as wide as the poles asunder from Fuseli in some respects, the abnormally long legs and exaggerated action of Fuseli's figures, which are laughed at now, were no more absurd than the abnormally long necks and great red lips of Rossetti's women, which a future generation of æsthetic critics will probably laugh at in their turn. In regard to the type of female beauty which Rossetti constantly painted, we must also express our opinion that it was (however intended) anything but a lofty or ideal one in fact, and represented, on the whole, a sensuous passion without any of the higher qualities of womanly tenderness; a view in which some of the painter's own admirers among journalistic critics have certainly tended to confirm us, by their sickly way of hovering, in print, over the details of these languid masks of sensuous beauty, uninformed by any intellectual or moral greatness of expression.

Our belief is that Rossetti's genius was in reality much more that of a poet than of a painter, and that he stands higher in virtue of some of his poems than any of his paintings can legitimately place him. Detailed criticism of his poetry would, however, be beyond the limits to which we restrict ourselves. Our opinion upon his merits as a painter is based, as we have said, upon that proportion of his works which we have been able to see. If those who have the custody of his pictures, and those who are the natural guardians of his artistic reputation, choose to appeal to public judgment by a general exhibition of his works, and if such an exhibition should disclose qualities which are not apparent in those of his works which we have already seen, we shall be ready to modify our opinion accordingly. So far as we can judge, without going out of our way to seek further acquaintance with his paintings as a matter of private favour, which we do not care to do, our impression is that Rossetti's claims to fame as a painter consist in his having been a remarkable colourist, and an artist possessed at times of very fervid conceptions, which he had not technical power to realise satisfactorily; and that he made the mistake of striving to be ideal by being unnatural, by ignoring the forms and feelings of real life and of healthy human nature, and by painting scenes and figures which are those of a dream (we might sometimes say, of a nightmare), and which, though not without a certain power, affect us with a disagreeable sense of eccentricity and of misdirected aims. If we express our opinion rather freely, it is from no unkindness towards the memory of a man who was, no doubt, a man of genius, but because some sort of protest is needed against the extravagant and often fulsome adulation of his clique of admirers, who endeavour to thrust their views upon us "against the stomach of our sense," and who have only themselves to blame if those who are in a more sane state of mind are tempted into speaking a little ungracious but necessary truth in return.

EDWARD DUNCAN, PAINTER IN WATER COLOURS.

WE record, with regret for his loss, the death of Mr. Edward Duncan, member of the Royal Society of Painters in Water-Colours, which took place on the 11th inst. He was born in 1803, within a mile of where he died. Like some other of our great artists, his father was an engraver, as, indeed, was Duncan himself for a time. Duncan's father used to engrave the paintings of Mr. W. J. Huggins, of Leadenhall-street, a marine artist of sufficient standing to obtain from William IV. a commission to paint two pictures, "The Battle of Trafalgar," now at Hampton Court.

Young Duncan was brought into contact with Huggins's family in carrying his father's proofs backwards and forwards, which led to intimacy, ending in his marrying Miss Huggins in 1831. As Miss Huggins was, in every sense of the word, an artist, she induced her husband to abandon engraving, and devote himself to drawing. We have before us a sketch by Duncan in water-colours, made in 1820, a "View of Old London Bridge from the Custom House Quay," in which we can count 150 figures, all miniatures, and the worst that can be said of it is that it is like a modern coloured photograph, and painfully correct. Mr. Duncan was always free to admit that he had to thank the late Mr. Ingram and the *Illustrated News*, in a great measure, for his ultimate success in life as an artist.

He will also be remembered as supplying annually the drawing for "The Stationers' Almanac," some of which he engraved himself.

Mr. Duncan, as a water-colour artist, stood

* Having allowed one contributor to point out what he considers the weaknesses of the official scheme, we have, in another page, set forth the plan of a second contributor, which presents claims for consideration. It does no attempt to deal with the crossing of the east and west traffic by that of the north and south at Hamilton-place, but, as it seems to us, it will do efficiently all that the Office of Works' plan proposes to do without taking down the arch, and with much less sacrifice of the Park.

high, — equally good in every department as in his marine subjects. His "Life-boat," "Landing Sheep at the Mumbles," "Gathering Sea-weed at Jersey"; his river views, landscapes, farm-yards, and cattle (all by his own hand), are equally perfect. He was a very industrious man. Hardly in England a drawing-room owned by any one of taste but has drawings of his, and his studio contains hundreds of his original sketches, which, no doubt, when they come to the hammer, will be anxiously sought after.

He was a very liberal man too; kept an open house, a dinner party weekly; and his billiard-room open to all comers.

He brought up a large family, and died, leaving his wife an ample income, and something for all his children, all of which was earned by his own unaided pencil.

He had a good word for every one, more especially for young and struggling artists.

THE LATE W. BURGES AND HIS WORKS.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At the meeting of this Institute held on Monday evening last, Mr. Horace Jones, Vice-President, in the chair,

It was announced that Mr. Law, of Northampton, a Fellow of the Institute, died on the 14th inst.

The Obligatory Examination.

The secretary announced that the Council had that day received a communication from the Board of Examiners under By-law 14, to the effect that of twenty-two candidates who presented themselves for the March examination, seventeen had passed with credit.

Mr. R. Popplewell Pullan then read a paper dealing with the life and works of his brother-in-law, the late W. Burges, A.R.A. He commenced by observing that it might be broadly stated that it was very seldom that any great artist received his full meed of praise during his lifetime. There were, unfortunately, so many competitors in the race for fame, many of whom were actuated by feelings of jealousy towards the manifestly superior men, and these circumstances very frequently so overshadowed the career of a great artist that it was seldom that a clear view of his merits could be obtained during his lifetime. It was only when he was dead that people were able to take a calm view of his life, and to place him in his proper niche in the Temple of Fame. This was true of artists generally, but it was especially true of architects, because architects did not appeal so much to the senses, but more to the intellect, than artists who were sculptors or painters. It required many years to cultivate a thorough appreciation of architectural work, so that although an architect might live to a ripe old age, it was not often that his works were properly appreciated in his lifetime. Mr. Burges had, by many years of patient labour (of which his numerous volumes of sketches, some of which had been acquired by the Institute, were evidence) mastered the principles and thoroughly conquered the details of the particular style which he affected. Although his capabilities as a designer were recognised, there were few who were qualified to appreciate the research manifested by his works. He was undoubtedly the first of the art-architects of his day. By "art-architect" the author meant not only an architect capable of designing good architecture, in the limited sense of the word, but one who was thoroughly at home in designing all the adjuncts of a work of architecture, whether such adjuncts took the form of mosaics, tile pavements, stained-glass windows, or furniture. That he was the most eminent, profound, and versatile art-architect of his day, the numerous drawings and photographs exhibited of some of his works would testify. He was certainly pre-eminent in his peculiar branch of art,—French Gothic of the thirteenth-century period. In character, Burges was emphatically what Mr. Beresford-Hope had described him,—a noble-hearted man, a man of extreme generosity, and this was especially shown in the liberal manner in which he imparted information, not only to his pupils, but to all those who inquired of him. To the general public he imparted the results of his studies by lectures and writings almost innumerable. His open-handedness and liberality had their effect upon his generation, for no architect's works had been so frequently copied or imitated, at least in portions, as those of Burges. One did not find that the work of Sir Gilbert Scott or Mr. Street was copied; but in many streets of London were to be seen imitations of Burges's peculiar style. True, the style was open to all the world, but the plagiarism had extended to features which Burges had made essentially his own, and which were sometimes bodily appropriated. Another trait in his character was the exceeding conscientiousness with which he carried out his work. He would never undertake a work which he should not have funds and leisure to complete. Cork Cathedral was commenced in 1863, and was not yet finished. The works at Cardiff Castle, commenced in 1866, were still in progress. A minor trait in his character, but one which had nevertheless exercised a great influence over his works, was his boyish playfulness and perception of the comical element in life. He was extremely fond of animals, and this love of animals was seen in the birds and beasts which formed so conspicuous a part in the detail of most of his works. He delighted in dogs, and used to keep three in his chambers, and they did not always welcome his clients in a friendly manner. On leaving King's College he was placed with Mr. Blore, the foremost Gothic architect of his day, and who had charge of Westminster Abbey and Lambeth Palace. He subsequently spent a considerable time in making tours in France and Italy. His first success was when, in 1856, in conjunction with Mr. Clutton, he obtained the international competition for Lille Cathedral. His second success was the gaining of the first prize for the Memorial Church at Constantinople. In these competitions Burges obtained his spurs. The way had been prepared for his successes. The writings of Britton and Pugin in England, and of Viollet le Duc and Didron in France, had turned public attention to the native styles of architecture. Competitions in those days were determined by committees of men of taste and learning, and were not left to the decision of a single individual. Burges's art was essentially masculine, his treatment of it bold and vigorous. He delighted in those positive colours which were used in the great periods of art. Indeed, he looked upon colour as the natural complement of architecture. He was a learned archæologist, and brought all his learning to bear upon his art. He was an incessant reader, Mediæval romances and inventories of all kinds claiming a large share of his attention. He read little that had no bearing on the work of the architect. He was the best iconographer of his day, and most of his works were complete poems, requiring a good acquaintance with Mediæval literature to enable one to properly understand them. He must be judged, however, not only by what he carried out, but by what he wished to carry out. For instance, his design for the Memorial Church at Constantinople was a very fine one, but was found to be too costly. He reduced it twice, but on being asked after that to remodel it entirely, he refused to do so, and the commission was eventually given to Mr. Street. One of the points which he was asked to concede was the abolition of the stone groining with which he proposed to cover the church. He refused; but at a subsequent period of his career he came to the conclusion that stone vaulting was not a *sine qua non* of thirteenth-century churches. His visit to Constantinople, however, was not without good results on his after-works, in which, as at Cardiff Castle, there is a certain infusion of Eastern art with the Gothic. The Cathedral of Brisbane, in New South Wales, was, perhaps, the least satisfactory of his church designs. It was, Mr. Pullan thought, much to be regretted that Burges was not more extensively employed on restorations. Waltham Abbey was his chief work in that direction. The Cathedral of St. Finn Barre, Cork, was undoubtedly his greatest work. He gained it in 1862, in competition with sixty-three other architects. It is one of the smallest and most compact cathedrals in existence. In the sculpture, which was very creditably carried out by Mr. Nichols, the architect had displayed his profound acquaintance with iconography. Altogether the building was the most complete example extant of a structure carried out in one style,—that of the thirteenth century. Fortunately for Mr. Burges his work at Cork was highly appreciated by the Dean and Chapter. Two of the most notable of his churches were the one erected for the Marquis of Ripon at Studley, and the one for Lady Mary Vyner, at Skelton. Both these churches were Geometrical in style, and thoroughly English in character. Although both were in the same style, and of about the same size, they were utterly dissimilar in design. He erected many other churches. His design for Edinburgh Cathedral was one for a noble church, and it was the most picturesque of the designs sent in, but it did not gain the victory, possibly because it was in the Early French style. The Marquis of Bute, whose archæological taste and knowledge led him to appreciate the like qualities in Burges, employed him to restore Cardiff Castle. To enable him the better to do this, Burges first of all visited and studied other castles in the Principality, such as Conway and Caerphilly. In this and other of his works he had shown that he was not a bigoted adherent of the thirteenth century, for in them he had practised an enlightened eclecticism. Pierrefonds, restored by the Emperor Napoleon III., and Cardiff, restored by the Marquis of Bute, were the only two castles which had been thoroughly restored in accordance with their condition in the thirteenth century. The restoration at Cardiff was most complete, even to the portcullis, which was not formed of the thin lath-like timbers shown by Pugin, but of solid timbers, shod with iron, and raised by machinery. Upon its contrivance and arrangement Burges spent more time than many of his contemporaries would expend upon the arrangements of an entire house. One of his most important public buildings was the College at Hartford, Connecticut, U.S.A., not yet finished. This had a frontage of 1,020 ft. He also designed the Grammar School at Ripon and the School of Art at Bombay. At the time of his death he was engaged in building a town-hall at Dover, adjoining the ancient Maison Dieu. His realisation of a Mediæval house was very complete. Knight's Hayes, built for Sir John Amory, was one of his best examples. It had long been his ambition to build himself a house in which he could indulge his taste for the beautiful to the utmost. He secured an eligible site in 1874, when a portion of Holland Park was cut off. The house was not yet finished, and would take some years to fully complete in accordance with his designs. Everything in it, from the furniture down to the utensils and knives and forks, had been made from his designs. The decorations throughout were most elaborately and quaintly designed. Similar in plan to his own house was the one which he had built for Mr. Maconochie at Cardiff. Although Burges had a special affection for Gothic, the versatility of his taste enabled him to appreciate the merits of other styles. His scheme for the decoration of St. Paul's was a graceful and complete iconographically-arranged design. It was certainly Mediæval in character, but it was Italian Mediæval, and suited to the building, for St. Paul's might be described as an Italian Mediæval building. At to his design for the Law Courts, he had heard competent critics express regret that it had not been carried out. After noticing one or two other designs by Mr. Burges, notably that for a fountain at Gloucester, Mr. Pullan concluded by observing that, as it was not likely that the same combination of circumstances which produced William Burges would occur again, it was hardly likely that we should ever look upon his like again.

Mr. R. Reynolds Rowe, of Cambridge, followed with a few notes descriptive of the alterations and additions carried out by Mr. Burges for Lord Carrington, at Gatehurst, near Newport-Pagnell, formerly the seat of Sir Everard Digby, of Gunpowder Plot celebrity.

The Chairman, in inviting discussion, said the thanks of the Institute were due to Mr. Pullan and Mr. Rowe for the able manner in which they had brought before the meeting some of the circumstances connected with the career of their lamented friend Burges, whom he had known for some five-and-twenty years as a pleasant and genial friend. Those who had known him could easily recall some amusing anecdotes of him, or some piece of good-natured satire to which he had given utterance.

Mr. Fowler, in proposing a vote of thanks to the readers of the papers, said he had the pleasure of knowing Mr. Burges intimately for a great many years. Although Burges possessed great knowledge, it was only when one had known him for some time that one became aware of the fact. He did not at all obtrude his knowledge; on the contrary, he seemed rather to be a man who only affected to be quaint. From very intimate acquaintance with him at an early period he was enabled to say that circumstances were by no means encouraging to him in the pursuit of his art. Although he might have had his way smoothed for him, it was rather made

rough than smooth, and it was only when he had achieved success that he was encouraged in those quarters where he might have looked for encouragement at an earlier period.

Mr. Ewan Christian, in seconding the motion, said that although personally he had only had a limited acquaintance with Mr. Burges, he saw enough of him to know that he was one of the most "thorough" men he had ever met with. He never did anything imperfectly when he undertook it. He had shown that he knew how to wait for success. Nowadays every architectural pupil wanted to set up in practice on his own account as soon as he completed his articles. Not so Burges. He determined from the very first to take abundant time for study, and to work diligently to make himself a master of his art before he began to practise. If he promulgated that advice amongst his pupils and the younger men of the profession, he could not, by any possibility, have given them better advice. With regard to his design for the cathedral at Edinburgh, he (the speaker) had an opportunity of thoroughly examining it, and he could only say that it was one of the most lovely pieces of design that he had ever seen, and was thoroughly and completely studied and worked out in every detail. He should have been glad if it could have been executed, but it was not in accordance with the taste of the Scottish folk. As to his proposals for the internal decoration of St. Paul's, however, it was, he thought, a very good thing that it had never been carried out, for it would have ruined his fame. Mr. Pullan had spoken of the care which Burges had bestowed upon the restoration of a portcullis, but he could not help thinking that in that instance their deceased friend's time and talents had been thrown away. What did we want with portcullises in these days of heavy artillery?

Professor Roger Smith, in supporting the motion, said that as an old friend of Mr. Burges he could not refrain from testifying to his admirable personal character. He thought that many persons were unaware of the high worth of Mr. Burges's character, and of the large fund of genuine courtesy and kindness which was to be found beneath his playful and sometimes rather *brusque* exterior. He did not know any man from whom he had received so much courtesy. He had the good fortune to have something to do with procuring him the commission for the Bombay School of Art, and he never seemed to forget it. Strongly Mediæval as he was, even to the extent of portcullises, he was by no means a one-sided student of architecture. His appreciation and love of Greek art were great, and his knowledge of Italian art was not only great, but practical. With regard to his scheme for the decoration of St. Paul's, and which had, unfortunately, failed to secure Mr. Christian's approval, he (the speaker) thought that it showed a thorough appreciation of the style in which it was designed. He further ventured to think that it was Burges's greatest work, and that its non-execution was the most unfortunate thing in his career. If it had been carried out it would have made the cathedral as magnificent inside as it was grand externally. What might be the result now, with the present divided counsels, one almost dreaded to think.

Mr. C. F. Hayward suggested that next session, and possibly later on, the Institute should give further time to the study and consideration of Mr. Burges's remarkable works.

Mr. Hansard observed that Mr. Pullan had said nothing as to Burges's extraordinary talent as a designer of goldsmiths' work and metal work generally. In one of his books of designs which had been secured for the Institute would be seen evidence of his intimate acquaintance with this branch of art. He not only knew how to design, but how to polish and fix the smallest portion of the work.

The motion having been carried, Mr. Pullan briefly replied, saying that, owing to shortness of time, he had only read about half the matter contained in his MS.

It was announced that the large collections of drawings and photographs shown in illustration of the paper would remain on view in the rooms of the Institute, 9, Conduit-street, for a few days.

York Minster.—The Dean and Chapter of York have appointed Mr. G. F. Bodley architect in charge of York Minster. Mr. Bodley is a native of Hull.—*Times.*

RECENT DECISIONS IN RELATION TO BUILDING AGREEMENTS.—I.

WHEN the vast amount of building and laying out of estates for the erection of houses is considered, the importance of some knowledge of the current state of the law in regard to building agreements by those who are concerned with this subject cannot be overestimated. Of course, it may be said that the lawyers of the interested parties are the persons to keep their clients out of legal trouble; but, unfortunately, lawyers, like doctors, are too often called in after the mischief has begun, and have to enable a man, not to avoid a possible trouble, but to get as best he can out of it. "A little learning," wrote Pope, "is a dangerous thing," and so it is, especially in law, if the possessor of the little trusts wholly to it; but, on the other hand, if it puts him on his guard, and causes him when he has a doubt upon a legal or semi-legal point to take technical advice, it appears to us that the little knowledge has proved a very fortunate possession.

The cases upon which we propose to comment will all enable a person who is aware of them to avoid future dangers in regard to building agreements, but they are not sufficiently connected to enable us to comment upon them as a whole, and, therefore, each of the three decisions must be separately touched on. The first to which we would refer is that of Laird *v.* Briggs, 19 Law Reports, Chancery Division, p. 22; and though in the report it is involved in many highly technical details, yet the result of it is sufficiently clear. Briefly stated, the main point involved the question as to the position of a builder under a building agreement, namely, whether he was, in any sense, a possessor of the land upon which his operations were taking place, so as to enable him to bring an action against a person making certain claims on the portion of the estate in question. Especially in connexion with various rights under the Prescription Act, the decision may have considerable importance, but, apart from that point, the position of a man who is in possession, and who is only on the ground by permission, is sufficiently different to make it advisable that he should not believe that he has one character when he has in fact another. But we must give this further warning that though the decision in question arose on the terms of a building agreement, it does not necessarily apply to every agreement, whatever may be its terms. Laymen are too apt to forget this, and very naturally to apply legal decisions sometimes too widely and absolutely. The agreement out of which the dispute arose was not only for the purpose of erecting houses, but of laying out carriage-roads, &c. First of all a right of entry on the land was given to the builder, and then it proceeded, "he will, at his own expense, form an embankment on the foreshore, and keep the same in repair," and then, "at his own expense will lay out and form on the embankment a carriage-drive and promenade in a substantial manner, and streets." Then came a clause by which such part of the land as should be required by the surveyor was to be preserved for building sites, and for garden, yard, and courts, to be erected; and next came an arrangement that the builder would erect a certain number of houses. The 20th clause was of considerable importance, for it stated that "these presents are intended to operate, and shall operate, as an agreement only, and not as an actual demise of the several parcels of land hereby agreed to be demised, or the buildings thereon to be erected, shall not give the tenant any legal interest in the said parcels of ground respectively, until the leases thereof shall be executed, except so far as to create a strict tenancy at will on the part of the tenant upon the terms aforesaid." Now let us see how, in a few words, the Master of the Rolls put the result of this agreement. He stated that there was to be a tenancy at will of the building sites, but not of the roads, embankments, or drives. As regards these, the builder had a mere "right of entry as any other workman would have, but that does not give him possession any more than the master-builder or the bricklayer who is building houses for a man on his own land has the right of possession." In some instances agreements for leases do not contain any stipulation as to there being a tenancy at will; in others it is distinctly expressed. One practical result of this decision would be that such an entry on land as occurred in this case would not be a possession which would raise a title within the Prescription Act. The two other cases are somewhat akin to each other, and quite distinct from that which has just been noticed, and we therefore defer our comments upon them for another occasion.

GLASGOW INSTITUTE OF THE FINE ARTS.

ENTRANCE DOORWAY.

WE give a view in our present number of the very handsome and well-studied doorway of the new buildings erected for the Glasgow Institute of the Fine Arts from the designs and under the superintendence of Mr. John James Burnet, architect, of that city. His designs for these buildings obtained the first place in a limited competition of six Glasgow architects, which took place in May, 1878; the construction was begun in October of that year, and the galleries were opened to the public on the 1st of February, 1880.

The site is on the south side of Sauchiehall-street, one of the main thoroughfares to the west end, and is about 96 ft. square.

The street floor is occupied by shops, having an *entresol* above them, and the galleries are on the first floor. Of these there are six. The sculpture-room is 35 ft. by 24 ft., and through it one passes to a room on either side, 30 ft. by 35 ft., from which galleries, 24 ft. by 18 ft. and 26 ft. by 19 ft. respectively, lead to either end of the large gallery, 94 ft. by 30 ft., which occupies the whole back of the site, and is, like all the rooms but the two smallest, 20 ft. high to the ceiling, and about 30 ft. to the ridge of the skylight.

The staircase, 24 ft. by 24 ft., enlarged on the gallery-floor by the addition of two wells, 24 ft. by 8 ft., giving light to the shops, is situated in the centre of the building, and is reached from the vestibule, 35 ft. by 24 ft., which occupies the centre of the front on the street-floor, by a flight of ten steps about 10 ft. wide. In the staircase a central flight of steps, 8 ft. wide, leads to the mid-landing, from which two flights of steps, 6 ft. broad, lead to the gallery-floor.

The secretary's rooms, ladies' and gentlemen's cloak-room, and refreshment-room, are reached from the mid-landing.

The whole of the galleries are in timber (yellow pine) stained of a golden colour and dim-varnished; the vestibule and staircase are in plaster, tinted very slightly with pale yellow and brown; and the roof of the staircase is of wood stained dark, and decorated with red, gold, and black.

The contractors for the work were,—mason, Mr. John Maxwell; joiners, Messrs. Keiller & Black; plasterers, Messrs. Thos. Miller & Co.; plumbers, Messrs. Brown & Young; and painters, Messrs. Anderson & Carlton.

The sculpture was executed by Messrs. J. & W. Mossman, and the carving by Mr. James Young.

The estimated cost of the building, not including painting and furniture for galleries and shops, was 13,700*l.*; and the actual sum expended was 15,785*l.* 10*s.* 9*d.*

CORNWALL MANSION, NEAR QUEEN'S GATE, SOUTH KENSINGTON.

THE illustration we give is a view of a house recently erected in the centre of Cornwall-gardens.

Externally the walls are faced with white Burham bricks. All the ornamental features and dressings on the four fronts are executed in Portland stone. The carving was carried out by Mr. Seale, of Walworth. Internally the house has been expensively fitted and finished, having oak parquetry floors, dados, and joiners' work to the principal rooms, and marble floors, pilasters, and columns to the hall and staircase.

The walls and ceilings have been richly decorated in the Adam style. Speaking-tubes and electric bells have been laid throughout.

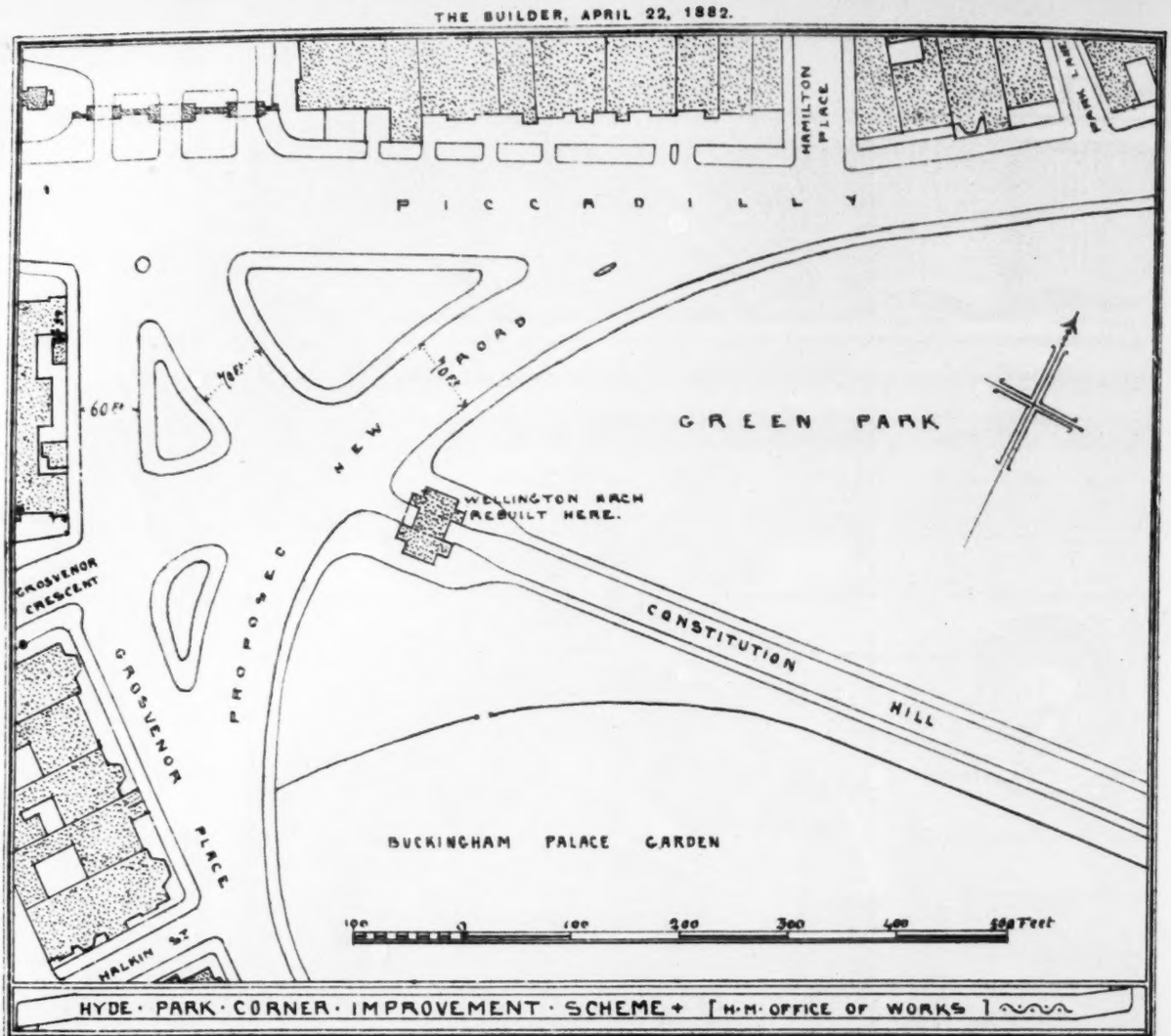
The kitchen, serving-room, and other domestic offices, are placed in the basement, with all the requirements of a first-class town establishment.

The works have been carried out by Mr. Wm. Willett, of South Kensington; and Mr. J. T. Smith, of 19, Parliament-street, was the architect.

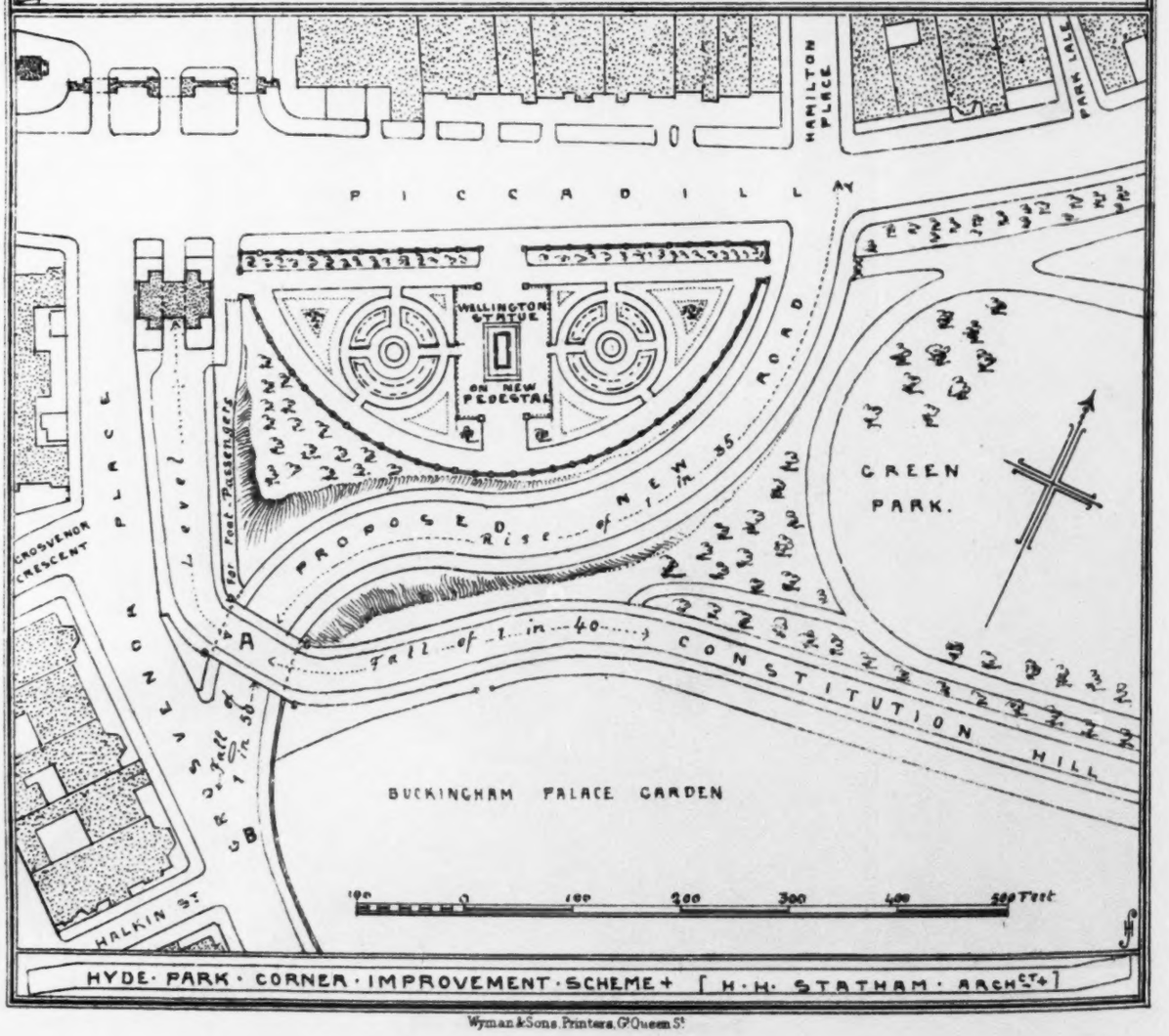
BALHAM HOUSE, BALHAM HILL.

ACCORDING to promise, we publish plans of this house, view of which was given in our last,—p. 430, &c., *ante.*

ENTRANCE TO THE NEW BUILDINGS OF THE GLASGOW INSTITUTE OF FINE ARTS.
Mr. John Jas. Burnet, Architect.



HYDE · PARK · CORNER · IMPROVEMENT · SCHEME + [H·M·OFFICE OF WORKS]



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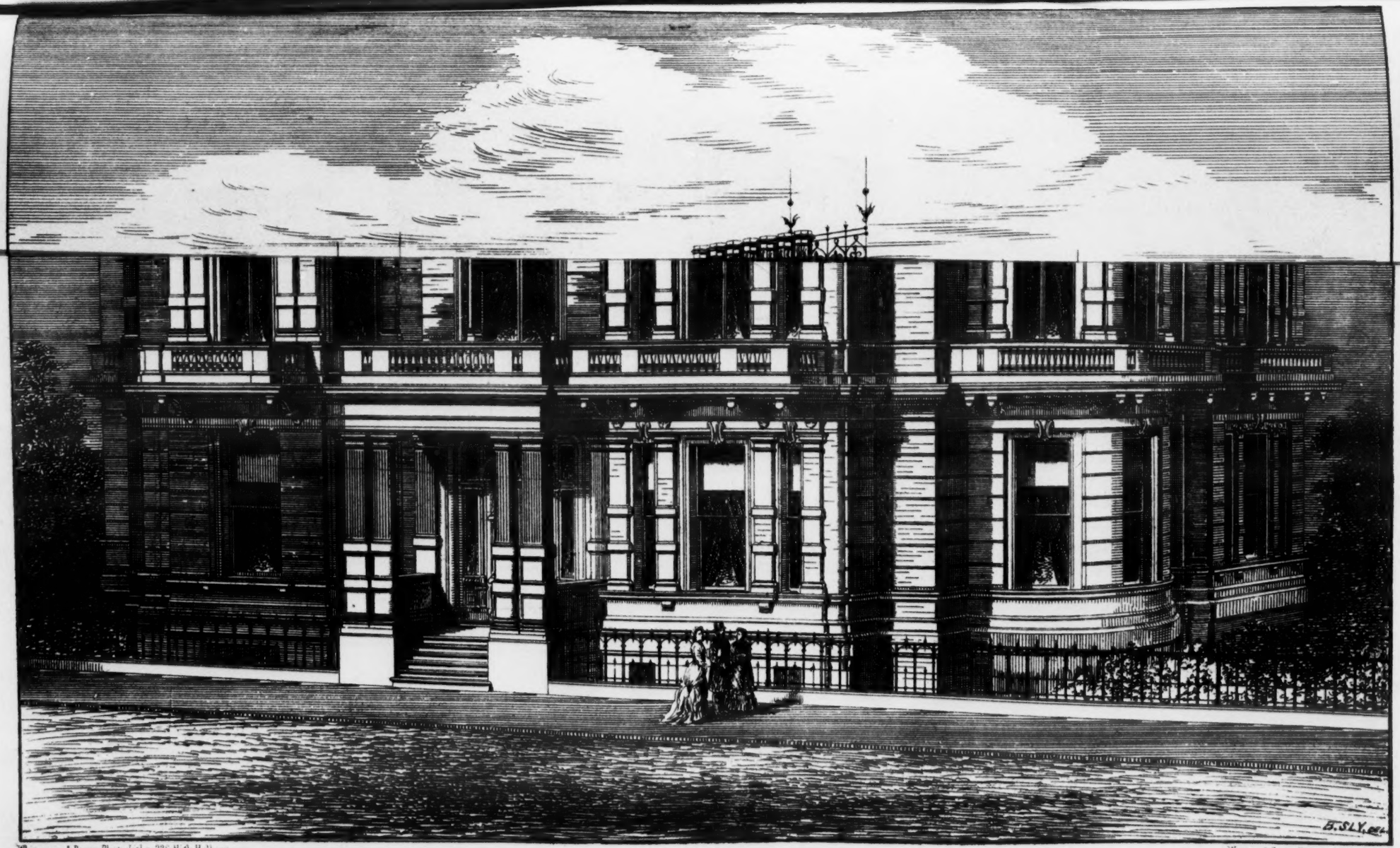

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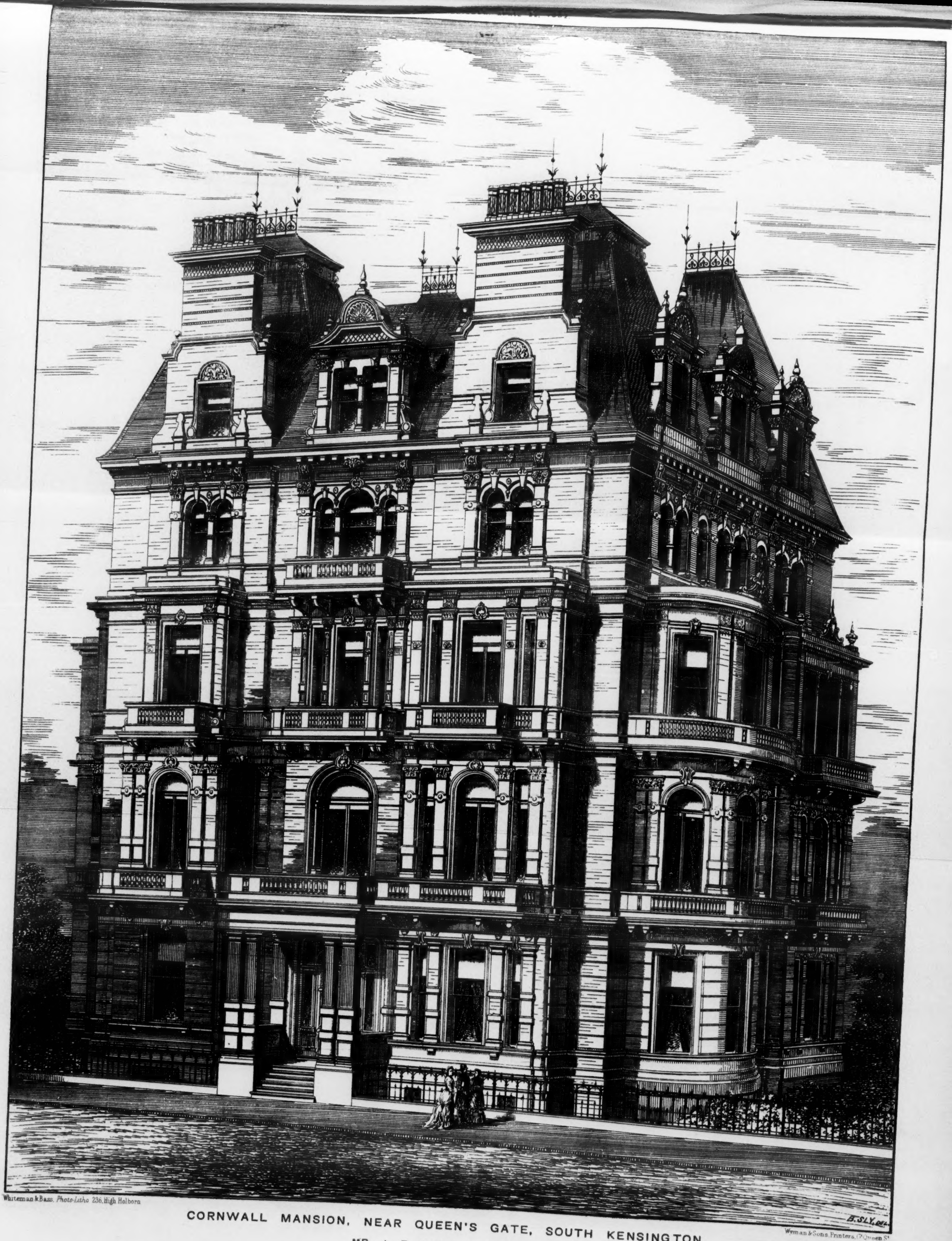
CORNWALL MANSION, NEAR QUEEN'S GATE, SOUTH KENSINGTON.

MR. J. T. SMITH, ARCHITECT.



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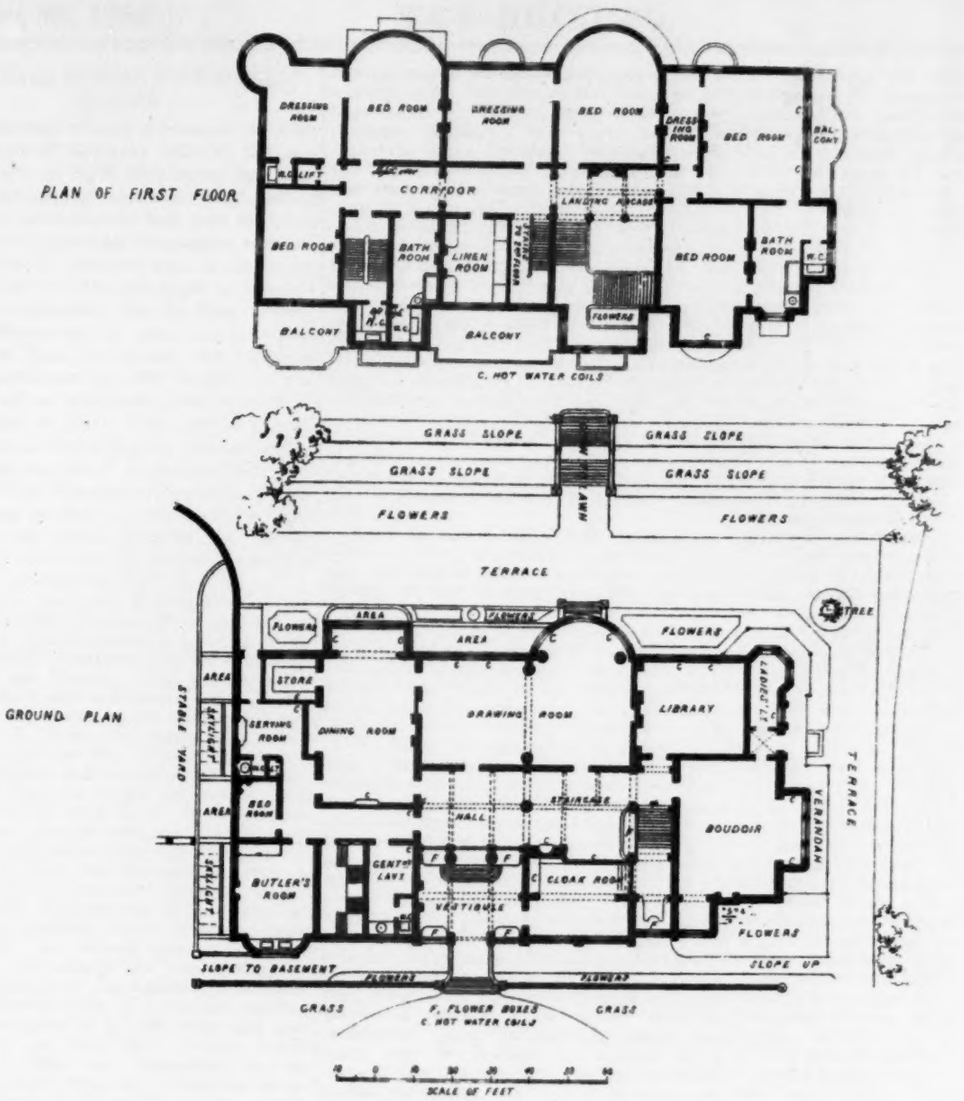
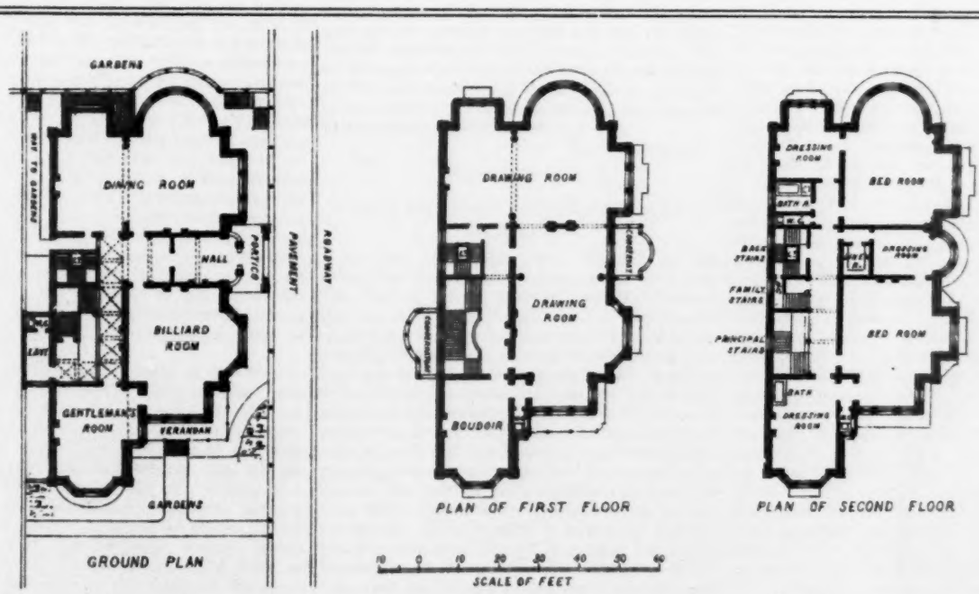


PLANS OF BALHAM HOUSE



PLANS OF CORNWALL MANSION

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HYDE PARK CORNER IMPROVEMENT SCHEME.

SIR,—The well-intended scheme of the First Commissioner of Works for relieving the pressure of traffic at Hyde Park-corner has been received with general expressions of satisfaction, which only serve to show how little the press and the public understand such matters in detail. It appears to be assumed, even by the Metropolitan Board of Works, who might be supposed to be better instructed, that the First Commissioner's scheme will do away with all inconvenience at Hyde Park-corner, and realise a public improvement in other respects in the formation of an ornamental *place* opposite to the entrance of Hyde Park, at the cost of pulling down and rebuilding the Wellington Arch and altering the line of Constitution-hill. The fact is, the First Commissioner's scheme, as you have already pointed out, will only partially relieve the obstruction of traffic, and that all that it will effect may be effected as well, or better, without touching the arch at all.

In the first place, let it be observed that the block of the traffic is as much or more felt at the foot of Hamilton-place as at Hyde Park-corner, from the collision of the traffic between the north and Victoria, with the Piccadilly traffic running east and west. This difficulty will hardly be touched by the plan put forth by the Office of Works; the stream of vehicles coming southwards from Hamilton-place will get away quicker when once clear of the corner, no doubt; but the traffic northwards from Victoria will be sent up to Hamilton-place quicker than it can get away, and the net result at that point will be much the same as at present. A road is no wider than its narrowest part,—a practical fact which seems to have escaped the notice of the draughtsmen of the Office of Works, who carefully figure a carriage-way "70 ft. wide" as a passage between two gateways only wide enough for one carriage to pass (*vide* plan), and who, therefore, apparently do not recognise that it is no use sending traffic up to a point by a road wider than that which it can get away by. Nothing would really clear away the obstruction at the foot of Hamilton-place but a roadway carrying the traffic *under* Piccadilly, a scheme which was, I believe, urged by correspondents in your columns at the time Hamilton-place was opened up, but the opportunity for which was lost, as such opportunities nearly always are lost at the time. The scheme could now only be carried out by purchasing the property on one side of Hamilton-place for the purpose, as the present roadway leaves no room for such an alteration; and though this would be an expensive process, still it might be supposed that as half a million was expended some years ago for the privilege of pulling down an old historic London building (Northumberland House) for the sake of an approach to the Embankment, a smaller sum might be reasonably laid out in purchasing the property to the east of Hamilton-place (which has no historic value) for the sake of a road which is far more necessary to public convenience than Northumberland-avenue. At all events, that is the only way to get rid of the obstruction, and of the consequent public inconvenience, for good and all; no scheme short of that will effect it.

This being the case, it would at the best be a question if it were worth while to take down and rebuild the arch for the sake of effecting what is only a half-measure; but a little examination of the levels of the roads which are to be manipulated will make it evident that all the advantage which the Office of Works plan does offer can be secured without moving the arch. I take the levels as given by the datum-figures of the Ordnance survey, which may be presumed to be correct. The bend of Constitution-hill next to the angle of Buckingham Palace-gardens, at the point A on the plan you are good enough to publish, is 3 ft. below the roadway of Piccadilly opposite the arch, and 14 ft. above the roadway of Grosvenor-place, opposite Halkin-street (B on plan). By raising Constitution-hill 3 ft. at this point (in other words, taking it level from Piccadilly to this point), and giving the new roadway as shown on my plan a slight dip of about 2 ft. from the crown of Grosvenor-place roadway, there would be ample height to take it under Constitution-hill, the carriage-way of the latter road being carried on a bridge at A. The rise of the new road, as I have shown it, would be only 1 in 35; a very moderate gradient: the upper portion of Grosvenor-place, between Grosvenor-crescent and Piccadilly, is rather more than 1 in 30. My new road is the same width as Hamilton-place (it is of no use on earth to have it wider), and it crosses Piccadilly at right angles, instead of edging the traffic in obliquely through the Piccadilly traffic; thereby causing much less entanglement of the different streams of traffic, and rendering their regulation by the police much easier, than it would be on the Office of Works plan. The width of the carriage-way at the top of Grosvenor-place can be increased by taking away the footpath on the east of the roadway and providing an ascent for foot passengers on the east side of the arch, after passing under the Constitution-hill bridge; but even this is little wanted practically, for any one who watches the foot-traffic up Grosvenor-place will see that by far the greater part of it is confined to the west side.

It will be seen, therefore, that this plan provides everything that the Office of Works plan provides, without either disturbing the arch or cutting off part of Constitution-hill, and that the portion of land cut off from the Green Park is still left available for public recreation-ground. I have proposed that it should be made into a *place* or ornamental garden, of which the Wellington Statue, on a new and suitable pedestal, should form the centre; for any alteration of Hyde Park-corner ought to include the removal of the statue from a position in which it has been a mark for ridicule to every artist and architect, and many others besides, ever since it was put up. The First Commissioner's scheme includes not only removing and rebuilding the arch, but deliberately putting up again into its position the statue, a proceeding which will simply be regarded with derision by all people who are competent to judge of such matters, as Mr. Shaw-Lefevre will be pretty sure to find out if he carries out this part of his scheme. As to the way of laying out the intermediate space shown in the Office of Works plan, it would be superfluous to criticise in this respect a scheme which implies that an ornamental *place*, or anything worth the name, can be realised by cutting up a space of ground into three irregular shoulder-of-mutton patches, too small to be made any use of, and without order or arrangement of any kind; and it may be charitably hoped that this part of the plan does not represent the taste or judgment of the present First Commissioner, but that of some irresponsible and permanent draughtsman of the Office of Works. If such a plan as this is really carried out, and if, when carried out and paid for, it is still regarded with all the approbation now hastily bestowed upon it, all that can be said is that the public are grateful in such matters for rather small mercies, acquired at somewhat disproportionate cost.

H. H. STATHAM.

THE PRESENT POSITION OF ART SCHOOLS.

AN Art Exhibition was opened at the Alexandra Hall, Newton Abbot, on the 12th inst. The Earl of Devon presided, and Mr. Callcott Horsley, R.A., delivered an address. Mr. Horsley spoke very strongly on the present condition and working of schools of art from South Kensington downwards. These art-schools, he said, had now drifted from the great purpose for which they were founded, namely, from schools of design in which art solely in connexion with manufactures was fostered, and had become mere drawing and painting schools for amateurs of both sexes, who flooded the country with worthless productions from which the country derived neither honour nor profit. He advocated a searching inquiry into the working of the Art Department of South Kensington, and urged the Government to institute such an inquiry before Mr. Gladstone and Sir Stafford Northcote, to whom he had previously made complimentary allusion, had passed from the scene of their earthly labours. He thought the great fault lay in the management of schools of art, from South Kensington downwards, by amateur committees, in which term he included the Privy Council, and the want of any efficient inspection of the staff of masters. Of his *Alma Mater*, the Royal Academy, the public were profoundly ignorant. He believed he should astonish even the Earl of Devon when he said that for 130 years the Royal Academy had opened its doors to every one who came to enter, and had provided the most perfect artistic education possible absolutely gratuitous. They had there schools established for all that an artist need know, and they were worked by able keepers and professional curators; but above that, they had an institution by which, he believed, the vitality of the Academy had been preserved to this hour, and that was the list of visitors. These visitors were annually elected from the ranks of the Academicians, and the most eminent men were chosen visitors. Each gave up his time for one month to the work, and not only did they inspect the work of the Academy, but they taught in the schools. The work of the Academy was, therefore, practically known to them, and there could not be a movement in those schools which was not checked and known to the whole body of the Academy. And to that alone he attributed the fact that the schools were at the present moment in as brilliant a condition of vitality,—in fact, far greater,—as they were 130 years ago. It was that principle which he wished all to ponder over and to lay to heart, and to see how it could be adopted in schools of art and design everywhere. With all the goodwill and energy of amateur advisers and helpers, such schools would be infinitely helped by the aid of professional men, and he thought the system of visitors might be, at all events, partially adopted, and that such visitors should go periodically to the schools, and should be responsible for a searching investigation of their work and progress. The masters of such schools should be kept firmly to the principle that they must make the interest and work of the school "the firstling of their heart and hand." Their independent labour must, when possible, be kept subservient. They must also carefully guard against the habit of careless and perfunctory teaching. There was a great advantage in beginning art-studies when young. He himself began when he was twelve, and trundled his hoop to the academy where he was taught, and as a boy went through the same studies he saw bearded men going through now. He would have all students thoroughly understand that at whatever age they commenced there could be no hope of future progress unless by untiring industry in mastering elementary instruction. Having said this much to masters and students, he would make a few remarks on the exhibition now around them. Judging was a hard and heart-breaking task, because the conscientious adjudicator was haunted by the faces and feelings of disappointed competitors. The judges had been greatly aided by the energetic action of their excellent friend the hon. sec. (Mr. Phillips), and by Mr. Vicary and his assistants. There were two points upon which they might be congratulated. Considering that the Newton School had only been in existence two years, their performance generally was decidedly satisfactory. He was especially gratified at the quality of the freehand drawings and mechanical outlines,—the foundation of all that followed. It would be difficult to name a school that had a more demonstrable reason for its existence, for the Newton School had intimate associations with the old-established pottery industry of the district, and might be venture to prophesy that that association would lead to great national results? But to enable him to be a true prophet they must one and all wake up to the difficulties as well as to the importance of the task before them. However, it inspired even a stranger like himself with enthusiasm, and he was sure they had not asked him down there to prophesy merely smooth things. The judges could only look upon the pottery exhibits there as a kind of germ of good things to come, and it sometimes required hard looking even to find and to see that germ. After that exhibition he hoped they would settle down to that hard work and study which could alone lead to success. They would receive priceless aid through the liberality of Sir Samuel Baker, who had formed a splendid collection, which he now permitted them to study, and he (Mr. Horsley) implored his dear young friends who had wasted precious hours in daubing on plates and scribbling upon pots to go down on their knees in spirit before the work of these Japanese artists. Let them devote every moment of their spare time to the minute study of the great works now before them. As the last part of his address Mr. Horsley dealt with the art education of women. He uttered a warning voice as to the modes of study for women which had been encouraged of late

years, which he considered reprehensible from a moral and religious point of view, and utterly useless from an artistic point of view. Such practices, too, as now prevailed in England were utterly unknown in Government art schools abroad. In the courageous struggle which many women of this country maintained to get what they were pleased to term their rights, there was much to sympathise with. He had every admiration for the way in which, by zealous industry, thousands of women, abjuring listless and purposeless lives, now acquired knowledge and practised skill in various schools. But the profound mistake they too often made in their profound enthusiam was in demanding to be admitted to the same intellectual platform as man, and to have all their privilege of work and study. Women, we knew, were sent into the world to fulfil some of its highest and noblest purposes; but we were equally certain they were not sent to write great epic poems, to compose great oratorios, or to paint great historic pictures, and every effort on the part of women to deal with these must end,—as they ever had done,—in disastrous failure. Distinguished female artists were not to be found out of the category of units. They were the exceptions which proved the rule. Therefore, women should not be encouraged in studies more than questionable from a moral point of view, and from which they could derive no real artistic benefit. Abroad, they ever recognised the fact that real artistic effect was alone achieved by man. But whilst uttering these plain, and, he feared to some of his fair audience, unpalatable truths, let it not be imagined that he would ignore or fail to encourage much that was delightful in the art gifts of women. A real hard-and-fast line as to how far they should go need not be set up; it was already drawn for them, inasmuch as they were women and not men, and with regard to drawing from naked living models of both sexes in Government Art Schools, so far as women and mixed classes were concerned, he called upon all of them to put down such practices as being shockingly repugnant to feelings of Christian morality, and utterly useless in their artistic results. He (Mr. Horsley) said this under a deep sense of duty, as the time had more than arrived when the question should be brought under the influence of public opinion. He believed this pernicious practice was commenced at the Slade School, and from their practice spread to South Kensington, and he was afraid to other schools. For the fuller understanding of all the evils arising from this pernicious system, it would be necessary to enter into details; but he willingly passed from it. It was the duty of every Christian citizen to do his utmost to discourage and put an end to so shameful a practice. He contrasted the practice of foreign Government schools. In Paris they only were permitted to study from the nude living model who were of sufficient age to show decided talent, and who were recognised as professional art-students. And he was assured that what was permitted at the Slade School would be impossible in any part of Germany. In all foreign countries studying from the living model was left more to private responsibility. The council of the Royal Academy had always peremptorily refused naked models to the female artist. She should alone deal with the clothed figure, which was indeed more in accord with the spirit of Christianity. This pernicious practice of which he had spoken was ultimately associated with that great wave of infidelity which Lord Shaftesbury had observed was passing over our land, and such practices he (Mr. Horsley) said were mainly advocated and permitted by those who, under the polite and society guise of "Agnosticism," would veil their atheism. All the reverence and modesty of Christian life were bound up with clothedness, and all art representations of nakedness were out of harmony with it. He instanced the erstwhile demoniac who was found sitting at the feet of Jesus, "clothed," and in his right mind.

New Swimming and Private Baths, in the rural district of Richmond, Surrey, will be opened on Saturday next, the 22nd inst., by his Serene Highness the Duke of Teck. The architects are Messrs. G. Elkington & Sons, Cannon-street; the builder is Mr. Priestley, of Kennington-road. The whole of the engineering work has been carried out by Messrs. Thos. Bradford & Co., of London and Manchester, who have also supplied the laundry machinery.

THE DESTRUCTION OF AN EXHIBITION BY FIRE.

One of the most extraordinary acts of Vandalism known in modern times was perpetrated a few weeks ago at Porte Alegre, a town in the southern part of Brazil. In the last quarter of 1881 an Exhibition was opened in the place in question, the contents being partly Brazilian, but mostly German. The German population in that quarter is numerous and influential, and the Exhibition was got up by a German firm of Porte Alegre, in conjunction with a Berlin society, who induced many German firms to send samples of their goods to the Exhibition. The name of this society is the Berlin Association for Commercial Geography. Its objects are to promote German foreign trade and German colonisation. The Exhibition was got together and opened under very favourable auspices. It remained open several months, and 15 contos were received in admission-money. Unfortunately, two days after the close, the whole building, with all its varied contents, was totally destroyed by fire. Worst of all, the fire was due to a wanton series of acts of incendiarism on the part of a drunken mob. In addition to the admission-fees, the rents of stands, and a grant from the Provincial Government of Sao Pedro do Sul, the expenses of the enterprise were to be defrayed in part by a lottery. This last-mentioned source of revenue played an unexpectedly important part in the final catastrophe. The reason assigned for the populace setting fire to the building is their indignation at the paltry value of the prizes given to the winners in the last series of drawings in the lottery. The first explosion of the popular dissatisfaction took place the day before the Exhibition was burnt down. Knots of men assembled in the refreshment establishment connected with the show, and manifested their dissatisfaction with the affair by helping themselves to liquor without payment, by smashing the windows, and by pouring spirits on the curtains and setting fire to them. Nothing more serious, however, occurred until the following day, when the mob reassembled and resumed the same conduct as on the first day. The officials and attendants managed, however, to ward off any danger of fire, although the curtains were again soaked with alcohol, and set fire to. At about half-past five in the evening the mob turned its attention to the packing-court, which at the time was filled with wooden boxes and cases, and hay and straw. These were close to a number of sheds used as stables, and the sheds adjoined the Exhibition Building itself. It occurred to some of the rioters to set fire to the straw in this department. Even after this had been done, it was some time before the flames assumed any serious proportions. Throughout the proceedings the authorities,—the soldiers and the police,—rendered no assistance in checking the excesses of the mob, or in preventing the spread of the fire: all that was done in this way being effected by the officials and the servants. A member of the committee addressed the crowd, and endeavoured to persuade it to disperse without doing any further mischief. In this he seemed likely to succeed, but some person crying out that his hearers were "a disgraceful drunken rabble," the crowd refused to listen any longer, and the riot was resumed.

From this moment the fate of the Exhibition building and the whole of its varied and valuable contents was sealed. After the failure of the attempt to pacify the mob with words, and while the fire was beginning to gather force in the packing-court, the rioters again poured spirit on some of the curtains and set fire to them, and began to throw stones enveloped in lighted paper through the broken windows into the Exhibition building. It was not by these attempts, however, that the ultimate catastrophe was brought about; but, as already described, by the rapid spread of the flames from the packing-court and sheds. After one of the towers of the Exhibition had been caught by the flames the progress of the conflagration was terribly rapid. In the course of half an hour the whole of the building and its contents were consumed. The fire was a terrible spectacle, and was witnessed by an immense crowd of citizens.

The difficulty which this act of Vandalism has left behind is a serious one. The goods and building were insured, but no insurance company is likely to pay if the statements of the German settlers in Port Alegre are correct. The *Deutsche Zeitung*, published in that town, throws the whole blame on the shoulders of the police and local authorities. After the first day's tumult it is stated that the chief officials connected with the Exhibition had applied to the provincial authorities for a sufficient force of police and soldiers to protect the property; but their representations remained unheeded. Moreover, the few police who were on the spot at the time of the renewal of the disturbances on the second day are said to have remained almost passive spectators of the excesses of the mob. They made no exertions to restrain the rioters or to put out the fire, all that was done in that way being the work of the officials, attendants, and waiters connected with the Exhibition. "The Government," says the journal just mentioned, "was informed, through its agents, beforehand of the danger that threatened, but it did nothing towards warding it off. The Government, therefore, must be held responsible for the damages. There may have been failings in several quarters, but the duty of preserving public order is not the business of private persons, but of the State. Disturbances had taken place on Wednesday, although, in spite of the police putting in a very late appearance, they did not lead to serious consequences, but every one knew the tumult would be renewed on the following day. Even at nine o'clock in the morning more windows were smashed. When, therefore, the crowd increased in the afternoon and recommenced its work of destruction and plunder, was it not the duty of the police to interpose with energy, and even eventually to demand the assistance of the military? Instead of this, the *gendarmes* not only tolerated the scandal, but even encouraged it. One who was present reports that he heard a soldier saying to one of the rioters, 'Go ahead! Our orders are not to interfere with the people.' And so, in the presence of the soldiers, windows were smashed; stones were thrown at porcelain wares and lamps; and everything drinkable was fetched out and drunk, the soldiers joining quite cordially in the carouse. This is surely a perfectly intolerable state of things. The mob treated the entire affair as an excellent joke, and the authorities did not interfere with them. It is now proved that the Commissioners on the fatal day, Thursday, Feb. 23rd, asked everywhere for the assistance of the military. They asked the President of the Province; they asked the police; but all in vain. More the Commissioners could not do. The authorities are, therefore, responsible for the losses suffered. The exhibitors will require compensation, and the entire sum may amount to hundreds of contos, perhaps 40,000*l.* or 50,000*l.*" "This outrage," continues the writer, "is moreover an insult to all the Germans here living. This alone will be reason enough for the German Government not to remain a passive spectator in the matter. Complications of all sorts may be the consequence." We hope, however, that the affair will be treated with calmness and good sense, and that no further trouble may arise out of it.

INTERNATIONAL EXHIBITION OF HERALDRY.

This Exhibition was opened at the commencement of the present month, in the Art Exhibition Palace at Berlin, by Count Stillfried-Alcantara; Prince Charles of Prussia, the patron of the enterprise, being prevented from being present by indisposition. Count Stillfried, in a brief inaugural address, pointed out the importance of the different branches of study included in this exhibition, which presented not simply objects of heraldry, but was rich in articles belonging to the department of Sphragistics and documents bearing on genealogy. Heraldry, Sphragistics, and Genealogy were, in fact, three not unimportant auxilary sciences to history. The speaker was glad to assure his audience that these sciences, and the present exhibition of objects connected with them, had called forth a large amount of interest, not only in Germany, but in most other European countries. After Count Stillfried had declared the exhibition open, the assembly proceeded to take a first promenade through its different departments. One of these is the "Hohenzollern Chamber," containing numerous interesting objects representing the arms and seals of the House of Hohenzollern, the reigning family of Prussia and Germany. Other departments were those of Antiquities, arranged by Herr Döpler, jun.; the Genealogical collection, by Herr Budczies; the Orders and Coins, by Major Strantz; the Glass and Porcelain, by Count von

Brühl; the Engravings, by Herr Otto; the Armoury, a rich collection of weapons, by Captain Kretschmar; the Textile Fabrics and Tapestry, by Professor Hildebrandt; and lastly, the treasures of the Dresden Museum of Art Industry, by Captain Kretschmar. The select and distinguished company, among whom were several Ministers, were conducted through the various departments by their respective chiefs, who explained to the guests the most interesting objects and features of the different groups. The exhibition presents a splendid spectacle, and is a great success. The Ministers and other distinguished personages present at the opening unanimously expressed the great surprise and pleasure with which they had witnessed this unique and extraordinary display.

INTERNATIONAL COMMISSIONS FOR ELECTRICAL OBSERVATIONS.

At the congress of Electricians at Paris last year, three International Commissions were suggested in connexion with electrical observations and other objects. In accordance with this suggestion the French Minister of Foreign Affairs addressed to the French representatives abroad a circular inviting the co-operation of all the chief States of the world. The following Governments have accordingly appointed delegates to the three Commissions in question:—England, Belgium, Holland, Switzerland, Italy, Spain, Austria, Hungary, Norway, United States, Mexico, Costa Rica, Nicaragua, Columbia, and the Argentine Republic. Germany, Russia, and Portugal have also accepted the invitation, but have not yet appointed their delegates. Sweden and Brazil have not yet accepted, and an answer has yet to be received from Turkey and Japan. The Commissions were to have met in Paris on the 1st of April, but owing to the delay in the appointment of some of the delegates the convocation of the Commissions has been postponed for a short time.

RUSSIAN NEWS.

An interesting question has recently been occupying the attention of the Russian Technical Society. This is the illumination of churches by the electric light. The primitive methods of wax candles and oil lamps is by many considered unsatisfactory when the brilliant illumination of electricity may be had so easily. A trial of lighting the new Cathedral of St. Saviour, in Moscow, was recently made with 8,000 wax lights, and the result proved unsatisfactory.

This question of the introduction of the electric light into churches will be considered by a meeting of members of the Russian Technical Society during the Moscow Exhibition, and it is contemplated subsequently to bring the matter under the notice of the higher ecclesiastical authorities, who, it is thought, will not come to any final decision without reference to the other autonomous Greek Orthodox churches.

It is extremely doubtful that the Russian clergy will accept the new light. Apart from the conservatism peculiar in ecclesiastical matters, the Church rules are very strict in prescribing wax and oil as the sole sources of illumination in the temples of the Greek faith. To this day gas is permitted in no Russian church. The Russian churches are, as compared with those of Western Europe, small, and the congregation never use books. There seems to me no need of this innovation, which by many will undoubtedly be deemed revolutionary. Artistically, I believe, one very characteristic feature would be quite lost,—the mellow, golden effect of the richly-gilded Iconostasis, and the groups of lighted cierges which it reflects.

Arrangements are being made for public lectures to be given in connexion with the forthcoming exhibition of Russian Arts and Industries at Moscow. Several courses of lectures upon technology and mechanics are in preparation, under the auspices of the Society for the Diffusion of Technical Knowledge.

There is to be a fresh competition for the design for a church to be erected upon the spot where the late Emperor of Russia was assassinated,—The Temple of the 1st (our 13th) of March, as it has got to be called. In this competition no prize is to be given,—none, at least, has been named as yet. All drawings, however, will be submitted to the Emperor if, upon examination, they are found to fulfil the following conditions which have been decided upon. The church is to have three altars, it is to be of sufficient size to accommodate 1,000 persons, and it is to be in the Russian ecclesiastical style of the sixteenth century. The ground-plan is to be so located that the spot upon which Alexander II. fell mortally wounded should be within the church, and at the right-hand corner of its western end. The sacristy is not to be placed beneath the church, as this part must be reserved exclusively for heating apparatus. The drawings are to be made upon the following scale:—For façades and section half an inch to the sazhen (= 7 ft. English), for plans one-quarter inch, and for the general plan one-fifth inch to the sazhen.

According to the *Novosti*, a permanent exhibition for trades and industries connected with building is to be established in St. Petersburg, with the co-operation of the Society of Architects. The committee chosen to decide upon the merits of the various competitors will, it is added, soon have completed its work.

An architect of Warsaw has designed a handsome opera-house for the city. The plans and drawings are now under consideration by the authorities at St. Petersburg.

THE NEW CITY OF LONDON SCHOOL.

VISIT OF THE ARCHITECTURAL ASSOCIATION.

On Saturday afternoon last a large number of the members of the Architectural Association paid a visit to the new City of London School, on the Victoria Embankment. The buildings are now approaching completion, and will probably be opened some time in the autumn. The visitors were very kindly received by Mr. Davis, of the firm of Davis & Emanuel, the architects whose design was selected in the competition which took place more than two years ago. That design, however, is not that which is being carried out, for, the Corporation of London having reduced the frontage towards the Embankment from 196 ft. to 132 ft., the plans had to be entirely recast. Of the design as it is being carried out we gave a view and four plans in vol. xxxviii. of the *Builder*, pp. 602-5 (May 15, 1880), therefore it is not now necessary for us to describe the buildings in very minute detail. The total area of the site is 70,000 ft. super., and the main buildings occupy an area of 18,000 ft. In addition, there are a large gymnasium, six "Fives" courts (two covered and four open), and detached latrines, &c., covering in all an additional 5,200 ft. From the basement three staircases lead up (on the west side of the building) to the second-floor level. These staircases will be mainly for the use of the scholars, and, although giving access to all the floors of the building, will, as a matter of discipline, be separately assigned to the boys having their class-rooms on the ground, first, and second floors respectively. By these staircases the boys will reach the basement, which contains a large covered playground, and which is level with the open playground north of the buildings. In the basement is a large dining-hall for the boys, 50 ft. by 32 ft., and 16 ft. high (which is the height of the basement story throughout, and of all the other stories of the building, excepting only the great hall and the lecture theatre). This dining-hall will be in communication with the kitchen (which is on the second floor) by means of a lift. It is thought that some 200 out of the 600 scholars for whom the school is being built will dine on the premises. (It should be remembered that the school is a day-school.) Adjoining the dining-hall will be lavatories for the boys, and a commodious hat and cloak-room, properly ventilated and warmed. This room will measure 48 ft. by 36 ft., and will have eight entrances. South of the dining-hall will be a room 34 ft. by 32 ft., for the boilers and heating apparatus. The heating arrangements have been entrusted to Mr. Herring, of Chertsey. Boyd's hygiastic warm-air ventilating grates will be used in the class-rooms. The whole of the building will be lighted by gas. This part of the work is in the hands of Messrs. Clarke & Co., of Moorgate-street. The electric bells and speaking-tubes will be fitted up by Mr. Wontner Smith, of Finsbury-pavement. The whole of the walls in the basement story are faced with Cliff's cream-coloured glazed bricks. The floor of the covered and uncovered playground will be covered with tar-paving. The corridors on the upper floors will be paved with Claridge's asphalte, and the walls will be lined with Minton's white glazed tiles. The floors throughout are constructed of iron and concrete, that of the great hall being covered with wainscot oak and walnut, and those of the class-rooms and other apartments with pitch-pine. On the ground-floor, which will be raised some few feet above the Embankment roadway, access will be gained by the steps leading up to the principal entrance to a vestibule, nearly square, 34 ft. by 32 ft. This vestibule and the grand staircase leading up to the great hall (the floor of which is on the same level as the first floor of the teaching block in the rear) will form a very fine feature of the interior. On the staircase a niche is provided for a statue of the founder of the school, John Carpenter. Right and left, or east and west, of the vestibule will be corridors giving access to the rooms of the head-master, secretary, clerks, to the library, and to the class-room over which the head-master will preside. Running northward of the vestibule will be a corridor traversing the centre of the "teaching-block," on to which, on the ground-floor, eight class-rooms, each about 24 ft. by 22 ft., and each intended for forty boys, will open. At the north-east corner of the teaching-block, on the ground-floor, will be a suite of sitting-rooms, lavatories, and retiring-rooms for the assistant-masters. The great hall, on the first-floor level, runs east and west along the whole length of the façade towards the Embankment, and is 100 ft. long by 45 ft. wide in the clear. It forms the top story of this part of the building, and is covered by a high-pitched roof relieved with dormers and surmounted by a *flèche* in the centre. The height of the hall from the floor to the springing of the roof is 40 ft. The roof will be ceiled at a point 24 ft. above the springing, the timbers below the ceiling being cased and made to carry between them two tiers of arches supported on columns,—it being, in fact, an attempt to treat an open-timbered roof in a Classic manner. The total height of the roof from the floor of the hall to the ridge will be 84 ft. The first-floor of the "teaching-block" is similar in arrangement to the ground-floor, having a central corridor with class-rooms on either side; while on the second floor will be the kitchen and scullery, chemistry class-room and laboratory, apparatus-room, drawing class-rooms, apartments for the beadle, and, in the rear, the lecture-hall, 58 ft. by 48 ft. The roof of the great hall will be covered with green Westmoreland slates. Portland stone is used for the façade. The carving of the smaller details is by Mr. Seale, of Walworth, while Mr. Dayman is doing the larger sculptural work for the adornment of the exterior. The style of the building is Italian Renaissance. Mr. Charles Till is the clerk of works, and the visitors to the building on Saturday last had to thank him for the assistance he rendered to Mr. Davis in giving them information about the works, which are being carried out by Messrs. John Mowlem & Co., the amount of their contract being about 76,000*l.* Mr. John Jackson is the general foreman.

THE GROWTH OF ERRORS.

In our number for February 11th last, under the heading, "A Great Pre-historic Find," after alluding to Bologna as offering remains astounding to the archæologist, we went on to say, "It was not long since that in the excavations necessary for laying down a drain in the centre of the city, near the Church of San Francisco, perhaps one of the largest 'finds' of pre-historic treasures ever made was unearthed," and of these treasures we then gave an account. In the *Globe* of April the 10th appeared an article headed "Extraordinary 'Find' of Pre-historic Remains," commencing with the even more extraordinary statement:—"In the excavations necessary for laying down a drain *in the centre of the city of San Francisco*, near the church, the *Antiquary* says perhaps one of the largest 'finds' of pre-historic bronzes ever made was unearthed," and then going on to repeat the particulars we had given. Referring to the *Antiquary* of April, we found, sure enough, that our esteemed and learned contemporary had actually fallen into the strange error in question. The writer was probably flurried by the notion that he was making use of other people's goods without acknowledgment, and did not think of what he was doing. Now that the mistake has been again set going by the *Globe*, it will be taken up by other public teachers, and will be found cropping up again years hence to the amazement of the well-informed.

THE NEW CONSERVATIVE CLUB AT LIVERPOOL.

THE site to be covered by this building, of which the corner-stone was laid by Lord Salisbury last week, is (according to the Liverpool *Post*) about 1,100 yards in area, and has frontages of 96 ft. to Dale-street, 102 ft. 9 in. to Sir Thomas's-buildings, and 107 ft. to Cumberland-street. The style adopted is Renaissance, of a French type. The fronts towards Dale-street, Sir Thomas's-buildings, as well as the returned end in Cumberland-street, are built with Stourton stone, with outlooks from the principal apartments of the club proper. The continuation of Cumberland-street front is in Cliff's white bricks, red brick arches, and stone dressings, iron mullions and heads, to ground-floor and basement. The latter story is built in massive rusticated courses. The ground-floor story is taken up by the grand entrance-hall, reception-room, morning-room, library, and writing-room. A speaker's balcony is so constructed as to be accessible from the morning-room, and from it addresses can be delivered as occasion requires. The first floor is composed of a complete Corinthian order of polished stone. The principal windows are semicircular, and the spandrels of the architrave are emphasised by sculpture in relief, representing twelve subjects of the arts and sciences as follows:—Architecture and Engineering, Sculpture and Painting, Masonry and Carpentry, Navigation and Commerce, Agriculture and Manufacture, and Astronomy and Chemistry. A spectator's balcony is constructed in recesses of two fronts, 5 ft. 6 in. wide, supported on massive projecting consoles, boldly carved in relief. The second floor, which is a repetition of the order below, is occupied by two spacious private dining-rooms, three billiard-rooms, and two card-rooms; whilst the attic chiefly consists of extensive dormitories (separated alternately by the steward's and housekeeper's apartments), servants' hall, kitchen, and accessories. The fronts of the building are relieved by carved panels in window dados, keystones, spandrels, festoons, and capitals to columns. The large angular towers will be covered with ornamental fish-tiles, and a flagstaff, 40 ft. high, will be on the central tower.

The grand entrance to the club proper is situate at the corner of Dale and Cumberland streets (nearest to the town-hall), and is approached by a flight of marble steps, on either side being lamp-pedestals, Peterhead granite pilasters, jambs and richly-carved counter-jambs, and carved capitals, surmounted by massive consoles and bold entablature and pediment, having the arms of the city and county, also the constitutional motto, carved in deep relief. On either side of the vestibule are flower-stands, enclosed by ornamental oak and plate-glass screens. The vestibule folding-doors lead to the grand entrance-hall, which is subdivided into upper and lower vestibules by marble columns, and the floor is in marble mosaic.

There is a commodious committee-room in close proximity to the staircase-hall. By a series of marble steps the grand staircase is reached, presenting a complete Tuscan order, with a deep walnut dado between pilasters, continued all round up the staircase and along the landings. The floor of the landing has a deep margin of parquet work, alabaster, and Italian marble. The lighting of the second floor is obtained by three large windows from the central area; also counter ceiling-light, moulded bars, and all filled in with stained glass. On the ground-floor there are the entrances to the library and morning-room. The morning-room, which occupies two flanks of Dale-street and Sir Thomas's-buildings (equal to an area of 60 ft. by 25 ft.), exclusive of two bays having panelled walls, deep walnut and Parian dado, divided by columns and pilasters. The height of this floor is 17 ft. The coffee-room has three bays, and in capacity represents about 100 ft. by 28 ft. 9 in. The height is 18 ft. 6 in. The room is pleasingly broken into sections by single Corinthian columns, pilasters, with entablature and suitable cornice, deep walnut and cement dado (the latter for decorations). The smoke-room is similarly treated to the coffee-room, except the ceiling, which will be deeply coved and intersected by geometrical ribs. The apartment has a large bay, and is lighted from Dale and Cumberland streets. On the second floor are three spacious billiard-rooms, having four tables, two card-rooms, and two private dining-rooms. The kitchen is 50 ft. long and 17 ft. in height. Over the scullery are the laundry and washing accommodation, provided with necessary machines and apparatus, arranged to be driven by steam or hand power, as may be required. The heating, in addition to fireplaces, is obtained by hot-water pipes and coils, executed by Messrs. Bennett & Son, of Liverpool. The cold air is drawn in by means of a large tunnel under the meeting-hall of the basement. Fresh air is also admitted by "Tobin's" ventilators. The vitiated air is to be drawn into air-tight troughs and chambers under the roofs, and extracted by means of the "Acme" air-pump, worked by a silent gas-engine, supplied by Mr. Baker, of Liverpool. The contract (amounting to about 33,000*l.*) has been taken by Mr. Thomas Urmson, of Liverpool; and the architects are Messrs. F. & Geo. Holme, of Liverpool. The clerk of the works is Mr. Joseph Varty.

THE NEW TOWN-HALL AT BOOTLE.

THIS building was formally opened on the 10th inst. The principal front is in Oriel-road, and looks towards the busy docks and the river Mersey. On the north the building has a frontage to Trinity-road, both that and Oriel-road being broad and commodious thoroughfares, though out of the line of the heavier traffic which passes through the borough. On the south and east of the building there is a large open space, extending from Balliol-road to Trinity-road, and on these sides there is ample room for any extension which may hereafter be required. The great hall occupies the angle at the corner of Oriel-road and Trinity-road, having the Mayor's parlour, committee-room, and council-chamber on the right, fronting Oriel-road, while the offices of the corporation officials are to the left, fronting Trinity-road. The architect is Mr. John Johnson, of London, whose design was selected from among those sent in by fifty competitors. The style adopted is the Renaissance of the period of Francis I., but omitting the exuberant details usually employed. On the Oriel-road frontage, the lofty gable of the great hall, the portico which forms the principal entrance to the building, the clock tower, and the embayed windows of the committee-rooms, form the most striking features of the elevation. A line of panels, each carved with some armorial device, is carried round both the Oriel-road and Trinity-road frontage, midway between the lower and upper windows. The principal features of the elevation fronting Trinity-road are the six windows on that side of the great hall, and the arch, with pilasters and pediment at the entrance, which gives access to the public offices. The exterior walling is of Yorkshire parpoints, with yellow Stourton stone dressings for the architectural features. The entrance to the public offices is in Trinity-road, and immediately on entering there is a large well-lighted hall and corridor, giving access to the Town-clerk's private and public offices, placed near to the Mayor's apartments facing Oriel-road. The Mayor's parlour, ante and committee-rooms, council-chamber, &c., are entered from Oriel-road, the principal entrance being emphasised by the clock-tower. The large entrance-hall is connected by swing-doors with the entrance-hall to public offices, so that on crowded occasions the two entrance-halls can be thrown together. The first floor is approached by the grand stairs, 8 ft. wide, terminating in a spacious landing. The large hall or building has an area of upwards of 4,000 superficial feet, with large platform at one end, and retiring-rooms. For the convenience of the front or reserved seats, a separate carriage-entrance and staircase are provided. At the sides of the hall are projecting balconies supported on cast-iron cantilevers to avoid obstructing columns on the floor. There is a large end gallery. At the west end there is a large window filled with painted glass. The decoration of the hall is deferred for a short time. The builder is Mr. S. Webster, Brazenose-road, Bootle. Mr. James Paul has been the clerk of the works.

Fruit.—The *Gardener's Magazine* reports that fruit-trees are making a capital promise, and that garden-crops in general are in a satisfactory state. Severe frost now would undoubtedly prove terribly destructive, and our contemporary says that we must not consider that we are safe until after May 25th. Potatoes are unusually forward, and fruit-trees are flowering freely south of the Trent.

ST. PETER'S, LITTLE OAKLEY, NORTHANTS.

THIS interesting church, now in the hands of the Duke of Buccleuch, through the ancient Montagu family (who held the Great Boughton estates in Mediæval days), has been completely restored. The work was contemplated by his Grace more than twenty years ago, but more pressing claims prevented anything being done until 1867, when it was determined to carry out such structural work as was then absolutely necessary.

The church has a nave and aisles, with arcades of three arches, chancel, and west tower. The body is Early English, the aisles and clearstory very Early Decorated, and the tower Perpendicular. The nave and chancel roofs required to be entirely renewed in oak, the former high pitch of the latter being returned to.

The ancient poppyhead seats were repaired and new ones added, and a triplet window took the place of a modern square window in the east wall of the chancel.

Recently the ancient roofs of the aisles have been repaired and renewed, and the destroyed parapets restored.

The porch has been rebuilt, a vestry added, and proper tile floors and choir seats, &c., placed in the chancel, with a general repair of all the defective masonry.

The ancient platform in front of the former screen remains, as also a large portion of the altar of the north aisle, together with the stairs to the rood-loft, and also a relic of Puritan days, the old projecting wooden support for the hour-glass close to the pulpit.

There are two rich tombs of the old Montagu family in the chancel, and a Mediæval effigy, probably of one of this family, in the north chantry.

The more recent works have been carried out by Mr. S. Foster, of Kempston, under Messrs. R. Herbert Carpenter and B. Ingelow, of London. Mr. Owen Thomas was the carver employed.

Close to the church is the fine old Manor House of the Montagu family, built early in the sixteenth century.

"PISTOJA AND ITS MONUMENTS."

WE have recently received from Italy a copy of the local journal of Pistoja,—*Il Popolo Pistoiese*,—containing a lengthy notice (in great part a reproduction) of two papers published not long since in these columns on the monuments of that interesting Tuscan town.* Our Italian contemporary especially draws the attention of its readers to this notice by a foreign critic, of the treasures of the city, with a view, not alone, as the author, Sig. Chiappelli remarks, of making known to his fellow-citizens what opinion is held of their city and its antique edifices, so long the admiration of every cultivated traveller, but also on the score of the "curious, but none the less painful, truth" that he finds among his fellow-citizens an absence of proper knowledge of, or a legitimate sentiment and pride in, the artistic glories of their city. It is gratifying to be thanked "publicly" by our Pistojan correspondent for our papers on his city, and particularly when our agreeable task is acknowledged in such words as those with which Signor Chiappelli concludes his notice. "May our English contemporary, by calling the attention of the Pistoiesi to the treasures which are contained within their walls, contribute to revive among us the respect and worship of our national art, and the desire to ensure the prompt and suitable maintenance of our monuments." We can, however, scarcely believe Signor Chiappelli's statement that, on mentioning to those about him that a foreign journal had noticed at some length the monuments of Pistoja, he met with an expression of wonder that the city could supply any matter for artistic inquiry. "So little are we affected" (remarks the author in these, his "painful preliminaries," as he terms them) "by the artistic movement and the warm interest felt in the great works of the past, which is to be noticed at Florence, at Sienna, at Lucca, at Arezzo, and throughout Tuscany." This feeling of indifference referred to by our contemporary, it must be confessed, is to be noted in Italy; yet somehow we suspect a knowledge of the artistic glories of their past is more largely spread among the masses in the

* See *Builder*, p. 5, *ante*; and vol. xli., p. 730.

peninsula than it is with us. We are afraid, however, that the interest, where the all-seeing *forestiero* appears, is soon corrupted by mercenary considerations; but is not this so all the world over?

Our Pistojan critic, we are pleased to see, reproduces almost in its entirety our notice of the monuments of his city, only gently hinting in his conclusion at the omission of mention of certain features worthy of notice. These our courteous critic sums up as follows. The silver altar of S. Atto in the Duomo, "a marvellous work, in which is comprised almost the entire history of three centuries of the Tuscan goldsmith's craft, and superbly set in its surroundings by the skill of Brunelleschi"; "the elegant tomb of the jurisconsult Lazzari in San Domenico, a masterpiece by Rosselino," the pseudo-classic Chiesa dell' Umiltà; but, above all, "the interesting paintings which exist in the churches of the town, first among which stand the frescoes in the Church of Sagrestia and of the Capitolo di San Francesco, in which collaborated two great artists,—one, the pupil of Giotto, whom he aided at Assisi, il Capanna; the other of Pistoja, a pupil of Buffalmacco, Antonio Vite. These frescoes, worthy of being better known not only to the visitors to our city, but to our townspeople," remarks Sig. Chiappelli, "in spite of the sad want of care with which they are treated, still shine out from the sombre walls almost as brilliantly as on the day when they came fresh from the brush of the industrious artists who conceived and executed them." Strictly speaking, however, these are not monuments, and, moreover, our notices did not pretend to be exhaustive.

THE BUILDING EXHIBITION IN BIRMINGHAM.

THIS Exhibition, now open in Bingley Hall, Birmingham, under the management of Mr. John Black, will remain open until the 6th proximo. The exhibitors number about 150. Coming so soon after the recent exhibition in the Agricultural Hall, Islington, it necessarily contains a great many things recently described and commented upon in the columns of the *Builder*, but several firms carrying on business in the Midland Counties, who did not exhibit at Islington, have taken advantage of the present Exhibition in the capital of the Midlands.

The Exhibition was opened at noon on Monday by Mr. Barnsley, in the presence of a large number of persons. In opening the Exhibition, Mr. Barnsley said a very cursory view of it must impress them with its importance, both as a matter of interest and instruction. The most casual observer must be convinced of the comprehensive character of the building trade, which embraced, in fact, almost every other trade as well as calling into requisition art and science. He was sure that not only the architects and builders of the town would find abundant to interest them there, but the public at large could go and criticise the inventions and improvements which could be introduced into the erection and for the embellishment of their buildings. He hoped that the young men of the town and district especially would use that exceptional opportunity of seeking knowledge and information, which would be for their advantage in future business life. It was singularly appropriate that an exhibition of this kind should be held in Birmingham, which was universally acknowledged to be a centre of manufacture; and especially was it appropriate at this time, when the town was making such rapid strides in its improvement and in the development of its architecture. He was sure they would agree with him in wishing the movement every success, and he had great pleasure in declaring it open.

It would be impossible (even were it necessary) to mention a tithe of the objects that merit notice, but it may be said that all the departments included in house building and furnishing are well represented. There is little that is not intimately connected with these departments, the "cheap-jack" element having been rigorously excluded. In one part of the hall the process of electro-plating is shown, the electricity being generated by a dynamo-machine driven by an Otto gas-engine, and at night the hall is lighted up by Dr. Siemens's new regenerative gas lights. A new wooden floor has been laid all over the hall.

We wish success to the Exhibition.

THEATRES BURNT DOWN.

Bolton.—At an early hour on Sunday morning the Temple Opera House, Bolton, one of the largest provincial theatres in England, was totally destroyed by fire. The building is situated in Dawes-street, in the very centre of the town, and was formerly known as the Temple Mill. About five years ago it was converted into a theatre, and was opened on October 28th, 1877. Last year it was let on lease to Mr. Charles Majilton, who, after spending about 700*l.* in alterations and decorations, opened it on Christmas Eve with the pantomime of "Cinderella." Since the withdrawal of the pantomime the theatre has been occupied by various travelling companies, that of last week being Mr. Charles Dornton's, who produced the "Two Orphans." The theatre was 45 yards in length by 35 yards broad. It contained pit, lower circle, dress-circle, balcony, and gallery, and was capable of accommodating between 6,000 and 7,000. The dimensions of the stage were 60 ft. by 50 ft. The proscenium opening was 30 ft. square, and the combined depth of the magazine and well beneath the stage was 24 ft. The performance on Saturday night was concluded at half-past ten, and for some time afterwards Mr. Dornton and his company were engaged in packing up their wardrobes, the whole of which were carted from the building by half-past eleven. At that time there were no signs of fire, but in less than three-quarters of an hour afterwards, as Mr. A. Passmore, the manager to the lessee of the theatre, was seated in his house, adjoining the stage, conversing with a few friends, a woman knocked at the door and informed him that the theatre was on fire. Opening the sitting-room door and looking across the stage he discovered that the balcony opposite was in flames. Information was immediately conveyed to the Corporation fire-engine house, and in a few minutes the brigade were upon the spot, and had soon ten jets of water playing. From the first, however, there was no hope of saving the building. Owing to the nature of its contents the flames spread with great rapidity, and by one o'clock the roof fell in, followed quickly afterwards by the gallery, balcony, and circles. These fell almost simultaneously into the pit, whence the flames shot up to the height of 100 ft., illuminating the entire town. The brigades of Messrs. Ormrod & Hardcastle, Messrs. Cannon Brothers, and Messrs. Hardcastle & Co., Firwood, attended, but their services were of little avail. Against the west side of the building were arranged a number of carts laden with coal, belonging to the Atherton Coal Company, and several of these caught fire, but the flames were speedily extinguished. Mr. Hemmingway, the owner of the building, is partly insured. The damage is estimated at about 15,000*l.* The origin of the fire is unknown. It is supposed, however, to have been caused by some one in the balcony throwing down a lighted match, which, falling through a crevice in the floor, had set fire to a quantity of cotton-waste which had accumulated during the time the place was worked as a cotton-mill.

Schwerin.—Telegrams from Berlin and Schwerin announce that a fire broke out in the costume-room of the theatre of that town on Sunday night during a performance. The building was speedily enveloped in flames, but the people had time to escape before the fire reached the auditorium. The theatre has been completely gutted, and only the outer walls now remain standing. The clearing of the house was effected without any accident, the public being informed from the stage of the outbreak of the fire in time to make their escape.

DOCK WORKS EXPENDITURE ON THE MERSEY.

ACCORDING to the accounts of the Mersey Docks and Harbour Board, which have just been issued, the expenditure in dock works during the last twelve months was little short of 200,000*l.* The details show that in the engineer's department 140,746*l.* had been expended in works on the Liverpool side of the port, and 40,677*l.* at Birkenhead, on the Cheshire shore of the river, making a total of 181,423*l.* In the harbour master's department the total expenditure was 31,173*l.*; in the marine surveyor's department, 3,488*l.*; whilst in the dock traffic, weighing materials, and foreign animals' wharfs department, the expenditure was 35,942*l.* In the maintenance of the warehouses the expenditure was 32,847*l.*; and in the conservancy of the river, including maintenance of the lighthouses and lightships, and removal of wrecks, 23,715*l.* were expended. The total expenditure during the year, including the salaries of the engineer and his staff, and the secretary, treasurer, and other servants of the Board, amounted to 1,039,309*l.*, while the total income derived from dock rates, town dues, rents, and other sources, was 1,226,497*l.*

OBITUARY.

Sir Henry Cole, K.C.B.—We hear with very great regret of the death of Sir Henry Cole, which took place on Tuesday evening, after a short illness, in his 74th year. We defer until next week a detailed notice of his useful public career.

Mr. E. F. Law, J.P.—Mr. Edmund Francis Law, F.R.I.B.A., died at his residence, Northampton, on the 14th inst., in his 72nd year. He commenced practice in the town about forty-five years ago. He enjoyed a large practice, and among his works may be named the new Cattle Market at Northampton, new banking premises and other commercial buildings in the same town, a new cemetery at Wellingborough, and mansions at Stony Stratford and elsewhere. He was largely engaged in restoring churches in the town and county, his principal works in this direction being St. Giles's, Northampton (in conjunction with Sir Gilbert Scott as consulting architect), and All Saints', Northampton. He also built many schools. He was a thoroughly practical, "all-round" architect, and, at the same time, was no mean artist. He lived and died respected by all who knew him. He held the appointment of County Surveyor, and, at one period, that of Town Surveyor. Some eight or ten years ago he served the office of Mayor of Northampton. At the time of his death he was the senior magistrate on the borough bench.

Mr. George Jennings.—We learn with much regret that this gentleman, so widely known by his inventions in the shape of sanitary appliances, died on the 17th inst., in his 72nd year. We shall have more to say about him on a future occasion.

M. Henri Giffard.—From Paris comes the announcement of the death of M. Henri Giffard, the engineer and aëronaut. He was born in 1825, and took a prize from the Academy of Sciences in 1859 for the invention of his well-known and largely-used injector for feeding steam boilers.

DISSENTING CHURCH-BUILDING NEWS.

Norwood Green (Yorks).—The foundation-stone of a new Congregational Chapel has been laid at Norwood Green by Mr. Edward Crossley, of Halifax. The new building will accommodate a congregation of 300. The estimated cost is 800*l.* Mr. R. F. Rogerson, Brighouse, is the architect.

Rye.—The foundation-stone of a new Congregational Church for Rye, Sussex, has been laid. Mr. Elworthy, of St. Leonards, is the architect, and Mr. Small, of Ore, the contractor, the estimated cost of site and building being 1,200*l.* The building is planned to seat 350 people.

Manchester.—The committee of the Manchester Diocesan Church Building Society, in their report submitted to the annual meeting of members, state that during the year the society has received 4,271*l.* 4*s.* 2*d.* for the various departments of its work, embracing church extension, augmentation of poor benefices, and home missions. The donations appropriated to specific objects included special contributions paid through the society for the building of the new churches of St. Mary, Beswick; St. George, Mossley; the parsonages of St. Andrew, Radcliffe; St. Catherine, Manchester; and the augmentation of the benefices of Hornby and Bleasdale. During the past year six new churches were consecrated. Three of these were built by private individuals at a cost of 32,000*l.*, exclusive of the outlay on endowments and sites. Several new ecclesiastical districts were formed within the year, nine churches are in process of rebuilding or enlargement, ten new ones are in course of erection, and thirty-two others are contemplated.

BUILDING PATENTS.*

APPLICATIONS FOR LETTERS PATENT.

1,568. F. Render, Manchester. Manufacture of bricks, tiles, &c. March 31, 1882.

1,575. W. R. Lake, London. Manufacture of metallic roofing shingles. (Com. by R. Seaman, New York, U.S.A.) March 31, 1882.

1,579. D. Summerfield, Aston. Locks and latches. March 31, 1882.

1,584. G. L. Shorland, Manchester. Fireplaces or grates. April 1, 1882.

1,589. M. Menge & H. Krause, Berlin. Apparatus for painting the interior of houses, &c. April 1, 1882.

1,596. W. Johnson, Liverpool. Door latches and locks. April 1, 1882.

1,607. J. Matthison, Christiania, Norway. Door locks. April 3, 1882.

1,609. F. H. F. Engel, Hamburg. Manufacture of parquet flooring. (Com. by F. H. Schmidt, Altona, Prussia.) April 3, 1882.

1,620. P. M. Justice, London. Plaster for mouldings, coatings of walls, &c. (Com. by M. B. Church, Grand Rapids, U.S.A.) April 4, 1882.

1,652. J. J. Wheeler, London. Curbs of roads and footpaths. April 5, 1882.

1,655. H. Conolly, London. Water-closets. April 5, 1882.

1,695. G. H. T. Beamish, Queenstown. Construction of breakwaters, retaining walls, &c. April 8, 1882.

1,719. A. J. Boult, London. Water meters. (Com. by E. C. Terry, Terryville, U.S.A.) (Comp. spec.) April 11, 1882.

1,740. A. Browne, London. Stove. (Com. by L. Breglia, Dresden.) April 12, 1882.

1,749. C. Major, Bridgwater. Construction of roofing tiles. April 12, 1882.

1,770. W. H. Luther, Glasgow. Construction of metallic baths. April 13, 1882.

NOTICES TO PROCEED

have been given by the following applicants, on the dates named.

April 11, 1881.

5,747. A. M. Clark, London. Roofs for the protection of buildings in course of construction. (Com. by Comte A. C. de Barbarau, Paris.) Dec. 31, 1881.

119. E. R. Wethered, Woolwich. Window-sash fastenings. Jan. 9, 1882.

April 4, 1882.

5,142. L. A. Grotte, London. Apparatus for warming or heating. (Com. by C. Ostlund, Stockholm, Sweden.) Nov. 24, 1881.

5,571. A. M. Clark, London. Manufacture of floor coverings. (Com. by C. Thayer and V. E. Thayer, Jersey City, U.S.A.) Dec. 20, 1881.

755. R. Weaver, London. Water-closets, &c. Feb. 16, 1882.

April 7, 1882.

5,091. H. Defty, Middlesbrough. Apparatus for generating heat and warming buildings. Nov. 22, 1881.

351. J. Holroyd, Leeds. Tanks for flushing drains and sewers, &c. Jan. 24, 1882.

1,019. C. J. Mountford, Birmingham. Fire-resisting bricks and blocks. March 3, 1882.

1,306. W. Simmons, Maidstone. Ingredients for the manufacture of hearthstone. March 17, 1882.

April 14, 1882.

5,381. D. Gill, Weston-super-Mare. Water-closet apparatus. Dec. 9, 1882.

5,433. W. H. Saint Aubin, Bloxwich. Locks or fastenings, &c. Dec. 13, 1882.

5,466. W. Bash, L. Bash, & N. S. Damse, Manchester. Construction of locks and latches. Dec. 14, 1882.

ABRIDGMENTS OF SPECIFICATIONS

Published during the Week ending April 8, 1882.

3,606. C. D. Abel, London. Metallic structures for barracks, hospitals, &c.

This is an improvement on Patent No. 1,877 of 1878, in forming these structures with two concentric ribs instead of one, which, when the sides are filled in with brickwork, form a continuous air space through the building. The double ribs are connected together by ties or struts to increase their strength. (Com. by La Société Nouvelle de Construction, Paris.) Aug. 19, 1881. Price 6d.

3,648. W. H. Stephenson, Blackburn. Heating apparatus.

The pipes, instead of being circular, are of hollow semi-circular or ⊔ form, the interior forming the water space. This gives a larger heating and radiating surface. The heat is automatically regulated by an air-tight cylinder, in connexion with a syphon containing mercury, which, as the heat increases and the air in the cylinder expands, is forced up and closes the gas-supply pipe. Aug. 22, 1881. Price 6d.

3,737. H. Knoblauch, Berlin. Ramming apparatus for asphhalte pavement, &c.

Instead of using hand-rammers, a machine is made which has a number of heavy rammers which are lifted in turn by pins or toothed wheels, and then allowed to fall. As the machine is moved forward the surface covered by the blows slightly overlaps each other, so that the whole surface is rendered even. (Com. by E. Dietrich, Berlin.) Aug. 27, 1881. Price 6d.

3,761. R. W. Newlands, Shepherd's Bush. Fitting for excluding draught.

A semi-cylindrical bar is placed on the frame and on the floor under the door, and a rabbet is cut out of the door to fit this bar. Across the rabbet is stretched a piece of sheet indiarubber, which, when the door is closed, presses hard against the bar and excludes the draught. (*Pro. Pro.*) Aug. 29, 1881. Price 2d.

3,766. W. H. Cutler & J. Chapman, Eton. Apparatus for preventing waste of water.

In the cistern is formed a small chamber communicating with the cistern through an inwardly opening flap-valve, and from the small chamber a syphon leads to the closet. To the handle of the closet is attached an air-compressor, and when the handle is lifted the air is forced out of this compressor through a pipe into the small chamber and forces the water up the inner leg of the syphon, which is thereby brought into action and flushes the closet. Aug. 30, 1881. Price 6d.

3,810. T. le Poidevin, Guernsey. Apparatus for moulding bricks.

A frame is made for a number of brick moulds which has longitudinal bars notched to receive the cross parallel boards. When the prepared clay is forced into the moulds by a roller and scraper, the longitudinal bars are removed and the frame is again fixed together for a fresh lot of bricks. (*Pro. Pro.*) Sept. 1, 1881. Price 2d.

Published during the Week ending April 15, 1882.

3,713. C. D. Douglas, London. Construction of baths.

This is an improvement on Patent No. 1,538, of 1880, in forming the chamber at the end of the bath from which the discharge-pipe issues with an opening or doorway wide enough to admit the hand, so that the valve can easily be examined. Aug. 25, 1881. Price 6d.

3,738. E. Haskell & J. P. Bayly, London. Apparatus for heating by gas.

A metal frame is fitted to the grate, which holds rough rock-shaped pieces of glass inside, which are the burners. The foul air is led from the back to a condenser of cold water fitted below the grate. Aug. 27, 1881. Price 6d.

3,746. E. Kaulbach, London. Consuming coal and other fuel for heating purposes.

This apparatus consists of a basket for the coals, which is mounted horizontally on standards so that it can revolve and thereby place the fresh-lighted coal below the ardent fuel, consuming the smoke. Aug. 27, 1881. Price 4d.

3,796. A. M. Clark, London. Lenses for use in pavement lights, &c.

The upper surfaces of these lenses are either simply conical or formed with radiating grooves. A metal spur is fitted on the centre to protect these surfaces. The lower part projects downwards in form of a tongue of semi-prismatic shape with an inclined flat reflecting surface and an inclined convex diffusing surface. (Com. by P. Collamore, Boston, and U. Boyle, Springfield, U.S.A.) Aug. 31, 1881. Price 6d.

3,820. T. G. Gordon, Dudley. Facing or enamelling certain kinds of bricks or tiles.

As the stream of prepared clay passes through a box or hopper having a series of dies, which gradually increase in size, inside, it is faced with enamel of Cornwall clay, Cornwall stone, and bone, formed into a thick "slip" by a brush. The stream is then cut off by wires and placed in a warm drying-shed to harden before the bricks are pressed. Sept. 2, 1881. Price 6d.

3,839. C. D. Abel, London. Firegrates for burning dense and filamentous or fibrous fuel.

The grate-bars are arranged to form triangular faces of pyramidal sectional shape on which the fuel is fed from above, and down which the ashes fall. (Com. by A. Godillot, Paris.) Sept. 3, 1881. Price 6d.

3,873. C. S. Rolfe, Westminster. Appliances for preventing the efflux of deleterious gases from drain-pipes, &c.

A casing, made in form of a funnel, has, inside, a dish, and the inlet dips below the edge of this dish, which is in the form of two hemispheres partly cut away and joined together. (*Pro. Pro.*) Sept. 7, 1881. Price 2d.

4,065. W. White, Abergavenny. Building walls so as to render them damp-proof, &c.

These walls are built as a double wall in two thicknesses, and into the narrow space between is poured a composition made of asphalte, pitch, and sand or clinkers, &c. These materials are first well ground and then boiled together, and poured in a liquid state into the narrow space between the two walls as they are being built up. This renders them damp-proof and non-conducting, while it increases their strength. Sept. 21, 1881. Price 4d.

4,297. B. D. Healey, Brighouse. Asphalte apparatus.

This is an improvement on Patent No. 2,733, of 1876, in collecting the gases from the pan in pipes wherein are diaphragms of wire gauze. These gases are led to the fireplace, where they are decomposed. An overflow spout is made at the back of the pan to prevent the ingredients boiling over. The central flues are made of fireclay blocks jointed together along the crown, while the back parts are made of boiler-plates. Oct. 4, 1881. Price 4d.

* Compiled by Hart & Co., Patent Agents, 28, New Bridge-street, E.C.

A ROMAN VILLA.

A DISCOVERY interesting to archæologists has been made in a wood about a mile from Sudeley Castle. Workmen were digging for stone when they came across the remains of a Roman villa or chapel. The remnants of the walls are from 1 ft. to 2 ft. in height, and the building seems to have been divided into small rooms and corridors. One corridor, about 8 ft. or 9 ft. in width, is richly inlaid with tesseræ, the principal parts of the patterns being in ½-in. squares. The richest design, however, is that of a floor of an apartment about 8 ft. square, the workmanship being very intricate and handsome.

THE SMOKE ABATEMENT EXHIBITION.

THE adjudicators in the industrial section of the above exhibition at South Kensington have decided on the second award of prizes as follows:—Fire Bridges: bronze medal, Messrs. Chubb, London, for their cast-iron semi-circular fire bridge; bronze medal, Messrs. Ireland & Lownds, Leek, Staffordshire, for cast-iron tubular fire bridge. Fire bars and grates: Silver medal, the Wansh patent Fuel Economiser Company, London, for the application of vertical grates in steam-boiler furnaces; bronze medal, J. Farrar & Co., Barnsley, for Barber's under-feeding step grate; bronze medal, Mr. J. Collinge, Oldham, for Blocksege's external inclined grate; a silver medal, the Livet Boiler and Furnace Company, Finsbury-pavement, for Mr. Livet's method of setting boilers and for fire-bars. Furnace door: Bronze medal, W. A. Moreton & Co., Blackfriars-road, for a balanced fire-door; bronze medal, the Great Britain Smoke Consuming and Fuel Saving Company, Limited, Mansion House Chambers, E.C.

THE BY-LAWS OF THE METROPOLITAN BOARD OF WORKS.

CONCRETE.

ON March 30th, Henry Stone Slegg, residing at 131, Devonshire-road, was summoned before Mr. Barstow, at Clerkenwell Police Court, by Mr. J. Goldicutt Turner, the Deputy District Surveyor of East Islington, for having formed the foundations of two houses in a *cul-de-sac* out of Drayton Park on land to the east of the North London Railway, of concrete both insufficient in thickness and improperly composed, whereby the by-laws made by the Metropolitan Board of Works under the 16th section of the 41 and 42 Vic., cap. 32, had been infringed. The surveyor gave evidence to the above effect, and produced a drawing showing the relative proportions of the concrete put in and that required by the By-laws; he also called his clerk, who corroborated his statements.

After hearing contradictory evidence given by the defendant's son, and a labourer in the employ of the defendant, Mr. Barstow fined the defendant 20*l*. The same defendant had been fined, on March 3rd, 20*l*. for having commenced the above houses without having given the District Surveyor the notice prescribed by the 38th section of the 18 & 19 Vict., cap. 122.

LONDON BAKEHOUSES.

MR. LAKEMAN, one of her Majesty's Inspectors of Factories, in his report on London bakehouses, says:—

"Germans are gradually becoming the bakers for London, and they in many cases, for want of enlarged means, neglect those rules which we are called upon to enforce. The workman is a counterpart of his master; for, as the one is careless, so is the other. I consider it objectionable to smoke tobacco from pipes and cigarettes during the kneading of dough; I do not think it is cleanly for men semi-nude, with profuse perspiration dripping down their shoulders and arms, to lean over the troughs and work up bread in such a state; nor do I believe that wholesome bread can be made out of unclean utensils. It is undeniable that many of the bakehouses in my London district were unfit for their purpose; and some are so now, being underground, dark, ill-ventilated, damp, very small, unduly hot, often filled with vapour, cobwebs, and dust ornamenting the walls, the holes and corners of these converted dwelling-houses not cleaned out. Sinks were found without traps, uncovered in the bakehouse; the limewashing done in an imperfect manner; water-closets in the bakehouses, some without water supply or ventilation, the smell from them not agreeable; the refuse was swept under the troughs, where it lay until a large quantity was collected,—this most objectionable practice, which was universal, I am gradually breaking down; for I am credibly informed that the said refuse, when acted upon by damp and heat, generates insects innumerable. I pronounce this to be uncleanly, and

have forbidden it; for I am persuaded that the public should have some satisfaction in believing that a salutary law is now being enforced for their benefit. I do not hope to see upon my next visit to certain bakeries a horse stabled in one, his litter such as would be seen in neglected stables, nor rabbits running about that they may fatten upon the offal flour, nor fowls roosting upon the trough, the lid of which was certainly not open at the time. I have seen liquid manure from a stable running under sacks of flour, and an imperfect drain overflowing upon a bakehouse floor. I have also seen an open drain, 2 ft. square, into which liquid from adjoining premises flowed, and over which tins of buns were laid to cool; therefore I do not think that for humanity's sake we should regret that the inspection of bakehouses has been added to our duties."

It would thus seem that things are in some places as bad as they were twenty or thirty years ago, when the late Mr. Tremenheere and the *Builder* called attention to many such revolting details as those above enumerated.

PROVINCIAL NEWS.

Birmingham.—The Birmingham Town Council have, on the recommendation of the Gas Committee, adopted plans for the erection of offices for the Gas Department and an Art Gallery and Museum, on land at the rear of the Council House, and have authorised the committee to accept the tender of Messrs. Barnsley & Sons, amounting to 81,022*l.*, for the erection of such buildings, in accordance with the plans and elevations submitted. Alderman Kenrick, in moving the adoption of the report, said the original tender by Messrs. Barnsley was 86,480*l.*, but as this amount exceeded what the Gas Committee thought they could expend on the offices and Art Gallery, and as on looking through the quantities they saw some details which might very well be retrenched without any loss or injury to the building, they asked the architect to go through Messrs. Barnsley's quantities and to reduce the amount by about 5,600*l.* This was done, and they had the assurance of the architect that though some of the adornments were removed still the building was not injured for the purpose to which it was intended to be devoted. The committee hoped that when they had added the amounts already expended to the contract of Messrs. Barnsley,—which was now 81,022*l.*,—and had paid the architect's commission, and so on, the whole amount would be a total of 92,500*l.*, which would leave about 7,500*l.* for fittings, and they hoped the whole amount which they expended would be within the 100,000*l.*, that being what they had laid down for themselves as the extent to which they were prepared to go. Messrs. Barnsley have undertaken to conclude the work on the present foundation in two years and a half.

Stockport.—The Institution to be known as the Pendlebury Orphanage, Stockport, built by the legatees of the late Sir Ralph Pendlebury, was opened on Thursday, the 20th inst., by Lord Vernon. The building, which, irrespective of furnishing, will cost upwards of 10,000*l.*, has been erected from designs by Mr. J. W. Beaumont, architect, of Manchester. The ground-plan is practically divided into three portions, having communication with each other. One portion is occupied by the house, the second by the offices for out-door relief, and the third by the principal entrance and an assembly-hall. In connexion with the house are provided a day-room, 30 ft. by 20 ft., with separate entrances, and cloak-rooms for boys and girls, large kitchen, offices, and two parlours for master and mistress. On the first floor are two large dormitories and four smaller bedrooms, bath-room, linen-closet, &c. In connexion with the office for out-door relief are provided a board-room, ladies' committee-room, secretary's office, cloak-rooms, and applicants' waiting-room, with separate entrance. The Board-room is a handsome apartment, 30 ft. by 20 ft., lighted from outside with two double-light windows and a large bay, in all of which are window-seats of oak, with carved panelled backs. A panelled dado of oak, 6 ft. high, is carried round the room, and the chimney-piece, of oak, is carried up to the ceiling. The ceiling, which is carried on two oak beams, resting on carved stone corbels, is divided into panels by oak mouldings. A parquetry border, of oak and walnut, 2 ft. 6 in. wide, is carried round the floor, and fills the whole of the bay-window. The glass above the transoms of the windows is in lead-lights, the monograms of the legatees and Sir Ralph Pendlebury being painted on shields. The ladies' committee-room has a large bay window, finished similarly to that in the Board-room, but in pitch-pine, whilst the chimney-piece is of walnut-wood, and a parquetry border is carried round the room. The assembly-hall is 66 ft. by 31 ft. and 32 ft. 6 in. high to the flat portion of the roof. The timbers of the roof are all pitch-pine, the bays between the principals being formed into panels by pitch-pine mouldings. The floors of the entrance and inner halls are laid with mosaic tiling, by Mr. Oppenheimer, of Manchester. The elevations of the structure are faced with Ruabon red stock bricks, with stone jambs, mullions, &c., to windows and doors, and moulded strings of stone and terra-cotta. From the centre of the building rises a tower to the height of 98 ft. The contractors are Messrs. Southern & Sons, of Manchester. Mr. Rome has acted as clerk of works. The orphanage provides accommodation for only a few resident children, the principal work of the charity being out-door relief.

Leicester.—Mr. Alderman Chambers, the Mayor of Leicester, has received an intimation from Mr. Francis Knollys, C.B., that the Prince and Princess of Wales have consented to visit Leicester on Whit Monday, May 29, in order to open the new Abbey Park, which is now being completed at a cost of over 40,000*l.* About 120 acres of land have been acquired at a cost of about 30,000*l.*; ten acres have been set apart for a cricket and recreation-ground, while the park covers ninety-six acres. The Corporation has obtained power to spend 25,000*l.* in laying it out, building bridges, approaches, &c.

West Derby.—The foundation stones of the three chapels to be erected in the new cemetery for the township of West Derby, near Liverpool, which is now being laid out, were placed on the 15th inst. The new cemetery comprises seventy acres, part of the Lower House estate, and about two miles the other side of the village of West Derby. It is divided into sections, intended for Episcopalians, Nonconformists, and Roman Catholics, and a small chapel, in which the burial services will be performed, is to be erected in each section. Mr. F. Bartram Payton is the architect, and Mr. Jonathan Mattock the contractor for the erection of the buildings.

Rothwell.—On Easter Monday an Oddfellows' Hall, which has been erected at the cost of the members of the Polar Star Lodge, of the Manchester Unity of Oddfellows, was opened at Rothwell, Northants. The hall is a commodious building, erected from the designs of Mr. Wm. Dawkins, and it is oblong in shape, being 94 ft. in length and 20 ft. 9 in. in breadth. In its construction pressed bricks with Bath stone dressings have been used, and the roof is of open timber. The contracts for the different portions of the work were taken as follows:—Building, Mr. Tebbutt, 249*l.* 16*s.*; carpentering, Mr. Essex, 159*l.* 10*s.*; painting, plumbing, and glazing, Mr. Buswell, 38*l.* 12*s.*; total, 447*l.* 18*s.*

Goudhurst (Kent).—A ladies' school is being erected for the Rev. J. J. Kendon, consisting of a residence and school. It stands upon one of the highest spots in Kent, the scenery being charming. The residence consists of a porch and inner tiled lobby, with hall, drawing-room, dining-room, study, &c., with convenient out-buildings. The upper floors consist of bed-rooms, dormitories, bath-room, &c. The school, with class-room, is placed at the side. The works are executed throughout of a somewhat plain but strong character, the walls being of the same thickness throughout, bay windows being carried up on either side, and terminating in the roof with a centre pediment in moulded and cut brickwork, the strings (except stone) being of the same material, and are covered throughout with the Aylesford tiles. The works are being well executed by Mr. Alfred Martin, of Horsmonden, who has carried out similar works in the neighbourhood under the architect, Mr. Wm. Theobalds, Watling-street, City.

Art Furnishers' Alliance, New Bond-street. — One of the features of this year's programme of the Art Furnishers' Alliance, Limited, will be the exhibition during the approaching season of a new kind of glass of English manufacture, which, in point of artistic merit and originality, rivals the finest examples of the old Venetian glass-blowers. The specimens on view will be large and important decorative works, which are in no degree imitative, but have a character essentially original as regards design and treatment.

FULHAM INFIRMARY COMPETITION.

SIR,—I desire to call the attention of architects to the inclosed cutting from the *West London Observer* of Saturday last:—

"At the last meeting of the Board, a letter was read from Mr. Joseph Mitchell, one of the competing architects, asking what decision had been come to with regard to the designs of the new Infirmary.—The Clerk stated that he had replied that there had been no decision by the Local Government Board.—A letter was read from Mr. Pilbeam with reference to the proposed new Infirmary, to the effect that it was his intention to offer his services to the new Board free of all charges, in order that any plan required by the Local Government Board might be immediately prepared under the control of the new Board.—Mr. Green said it was a pity the offer was not made before the competition.—Mr. Schofield maintained that work of this kind should be paid for, and not done gratuitously. He moved that the letter should lie on the table.—Mr. Seymour seconded.—Mr. Storey moved that the letter be acknowledged, and the consideration of it referred to the new Board.—Mr. Froy seconded the motion, which was carried by seven to two."

The Mr. Pilbeam mentioned was, it may be remembered, a competitor in the recent competition, and his plans were not amongst those selected by the arbitrator (Mr. Henry Currey). After the final selection, which was in favour of a plan submitted by Messrs. Giles & Gough, and strongly recommended by Mr. Currey for adoption, great dissatisfaction was openly expressed by Mr. Pilbeam, who affixed to his drawings, when the public were admitted to see the plans, a note asking competitors who disagreed with the result arrived at to communicate with him. A large note of interrogation was added to the words, "this *competition?*" And although the plans were supposed to be still under motto, his own name was attached, with the letters "M.R.I.B.A." or "F.R.I.B.A.," I forget which.

Now, sir, I desire to ask whether this gentleman is a member of the Institute? and, if so, whether the fact above stated and the action mentioned in the extract inclosed is consistent with his any longer remaining so? I leave the question to be answered by the Institute itself. If such conduct is *possible* in members of the Institute of Architects, anything like reform in competition, or increased respect for our profession, is, I fear, *impossible*.

A MEMBER OF THE INSTITUTE.

APPROACHES TO THE LAW COURTS.

SIR,—May I avail myself of your columns to direct attention to the tardiness displayed with regard to the approaches to the New Law Courts? We are now within a few months of this large pile of buildings being complete, and from all I can learn, despite of the danger daily experienced in crossing the Strand, no steps have been taken to settle what shall be done. I hear on the best authority that leases are being lengthened, improvements contemplated, and all with the admitted object of increasing the amount of compensation. It must be plain to you, your readers, and all save those whose work it is to move in the matter, that the longer the change is delayed the more expensive it is sure to become. Only imagine the present traffic of the Strand being doubled. Why, sir, even now at certain hours of the day it is a matter of exceeding difficulty to pass from the north side to Norfolk-street to the Embankment, and only last week I saw a poor old lady knocked down in an attempt to run the passage. Park-lane, or any other lane, may want widening, but surely, however imperative that or any other improvement may be, there is none so imperative as this.

JOSEPH HUTCHINGS.

VENTILATION OF HOUSE DRAINS.

SIR,—Your paper of the 25th ult. contains a letter from Major-General F. C. Cotton, on the extraction of sewer gases from houses, which is very complete; but I am in doubt whether he or any one else has ever proposed any plan to extract the gas from the soil-pipe *downwards*, and I enclose a sketch of a way of effecting it.

It consists of the ordinary soil-pipe carried up full-size through and above the roof, with a cowl made so as to let the wind blow into it, in the manner of a wind-sail (as used on board ship); and another pipe of similar size placed as near the sewer outlet as may be, also passing through the roof and carrying an ordinary cowl. When the wind blows, and the cowls act, the air will flow *down* the soil-pipe, and noxious gases from the water-closets will go with it, passing the Y junctions in the proper

direction. When any discharge is made from a water-closet, so far from checking the current, it will accelerate and promote it, and the foul air which may be in the sewer will be carried up the second pipe, from which there is no opening into the house, or indeed anywhere except above the roof. In sultry weather, when there is no wind, what gas may be generated in the drains and pipes will find its way out by one or other of the pipes, whichever offers least resistance; but even then the downward action of the water-closet discharge will be in favour of the gas making its escape by the upward pipe.

I have seen the two pipes and the two cowls above the roof proposed before, but never the downward current of air through the soil-pipe. The plan explained in the 65th paragraph of the Local Government Model By-laws provides an inlet for air near the surface of the ground and an upward current of air through the soil-pipe.

H. P. B.

ARCHITECTS' QUANTITIES.

NEW MODE OF PAYMENT.

IT has hitherto been the custom to pay for the quantities and lithography by the builder out of the first instalment, for then there is an inducement for the architect to give the builder a certificate as soon as he is entitled to it. But who ever heard of a builder being compelled to pay for the quantities before he has a certificate? and what inducement has the architect then to be in a hurry to give the builder a certificate? The amount thus to be paid by the builder is between 300*l.* and 400*l.* This, with the tyrannical clauses in the specification and the exorbitant security the builder is asked to provide, places him at the mercy of the architect.

The work to which I allude is proposed to be done in enlarging the Hendon Union. Surely no builder will be found to do the works under those terms. I have had more than forty years' experience in quantities and estimates, but this beats all I have ever seen or heard.

J. P.

SLAMMING OF DOORS.

SIR, Can any of your readers inform me of the best practical method for obviating noise in the closing of doors? The rooms in my house are mostly floored round the margin with parquet, and, as the doors shut very easily we are constantly disturbed by "slams," which I am very desirous of obviating.

ALPHA.

STREET PAVEMENTS.

LIVERPOOL ENGINEERING SOCIETY.

THE fortnightly meeting of this Society was held at the Royal Institution, on Wednesday evening last week, Mr. F. Salmon, president, in the chair, when a paper was read by Mr. Jas. Morgan on "The Construction of Impervious Street Pavements, with special reference to the methods practised in Liverpool." In introducing the subject, the writer stated that previous to 1872 impervious pavements had no existence in Liverpool, and although the late Mr. Newlands, in his published report to the Health Committee, in 1848, strongly recommended, on sanitary grounds, the construction o pitch-jointed impervious pavements, no action was taken for twenty-four years, when the carriage-way of North John-street was re-constructed. The obvious advantages of the system soon became so apparent that at the present time there are within the city not less than 650,000 superficial yards of impervious pavements, all laid within nine years by the workmen of the corporation. This work has mainly been carried out in business streets and leading thoroughfares, but the writer urged the importance of extending the system more generally to the back streets in the densely populated parts of the city, to the entire abolition of boulder paving, with its filth-holding joint. The writer then described in detail the construction of the various classes of pavements and concrete foundations laid in Liverpool, exhibiting specimens of the material used in the work. In referring to wood pavement the author remarked that though the use of wood as a paving material has been strongly advocated of late years by tradesmen in busy thoroughfares, where the continuous din of city traffic is a great hindrance to the carrying on of their business, and a noiseless pavement would be a boon, yet want of knowledge and carelessness in its construction have prevented it from receiving the encouragement from engineers that it undoubtedly deserves. Though next to macadam the most expensive pavement to maintain, yet this excessive cost is counter-balanced by the comfort and quietness afforded in thoroughfares where these conditions are essential to the carrying on of business.

Wolverhampton. — St. Matthew's Church, Wolverhampton, has been re-opened, after having undergone thorough renovation and repair. The work has been carried out by Messrs. Bradney & Co., of Wolverhampton, at a cost of about 250*l.*

THE GREEK TRIGLYPH.

SIR,—Mr. Fergusson has invited your readers to discuss the ingenious theory of the origin of the Greek triglyph, which he has described in your number of the 15th inst. He will, therefore, I hope, permit me so far to accept his challenge as to contribute to the discussion a few difficulties which have occurred to my own mind, and which seem to stand in the way of an unhesitating acceptance of the hypothesis.

That the Greek Doric entablature is timber construction petrified, every one who looks carefully into the matter must recognise; but questions such as the following suggest themselves when we are asked to see in the triglyph the ends of three planks side by side. 1. Is it probable that in the archaic time planks would be so readily obtainable that the use of them in timber framing would suggest itself to the carpenters of the day? No doubt the shipwright was the artificer who first fashioned strong and elaborate structures of wood. Some of the Lycian tombs are manifestly little else than reproductions in stone of such a structure as a ship-builder would naturally raise; and planks would be wanted for the covering of a ship. But is it not likely that their use would be confined to purposes of covering, and that the framework of a building, like that of a ship, would be made of beams? Powerful saws do not seem to have been known, and planks split and possibly fashioned laboriously with the help of such a tool as an adze would be things to use sparingly.

Again, is not the use of a truss at all rather improbable? In the early Gothic churches we find roofs resting on a beam which occupies the position of the modern tie-beam, but which is really a girder with a post standing on it, and the rafters sloping down from the top of that post.

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CHURCH-BUILDING NEWS.

Horley.—The parish church of St. Bartholomew, Horley, Surrey, has been re-opened after restoration. The church, which is a commodious edifice, in the Late Early English style of architecture, consists of nave, chancel, and north and south aisles, and on the south side a transept was added towards the end of the last century, and fitted up with pews, belonging to Gatwick House. At the north-west angle is a shingled tower, containing eight bells, surmounted by an octagonal spire. The church contains some fine brasses. The present restorations have been carried out by Messrs. Parmenter, builders, of Braintree, at a cost of between 2,000*l.* and 3,000*l.*, under the supervision of Mr. A. W. Blomfield, M.A. The roof of the nave has been stripped of its whitewash, and the old galleries removed. The organ-gallery, which was formerly over the north door, has been taken down and replaced in the Gatwick Chapel. The old screen around the steeple has been removed, and a platform, with balustrade, erected at the end of the north aisle for the ringers. The fine peal of eight bells, two of which were hung as recently as 1840, has been rehung in a new frame, whilst the tower and steeple have been braced up and strengthened. The windows round the church have been remodelled, but the original designs preserved. The east window has been filled with stained glass in memory of the late Rev. William Holled Hughes, B.A., vicar of the parish from 1853 to 1871. A painted window, from the studio of Mr. Taylor, of Berners-street, London, having for its subject "The Good Samaritan," has been erected at the west end by Mr. John Maple, of Horley and London, in memory of his son. The old font, of simple Norman design, has been transferred to the west end.

Staverton.—This church, pleasantly situated upon the picturesque river Dart, was re-used for the first time on Easter Sunday, after the restoration of nave and aisles. The chancel was restored a few years ago from the designs of Mr. Ewan Christian, and now, at the hands of the same gentleman, the body of the church has been taken in hand. The main points of the general work are the new roofs and windows, and the replastering of walls. The old piers and arcades have been thoroughly overhauled, the various internal approaches have been laid with encaustic tiles by Messrs. Minton Hollins, & Co., of Stoke-upon-Trent; and new open benches have taken the place of the former unsightly pews. The church contains very good fifteenth-century rood and parclose screens. These are of oak, richly carved and of exquisite detail. The former has an unbroken run from north to south of upwards of 50 ft. It is in the hands of Mr. Harry Hems, of Exeter, who has underpinned it, and placed beneath its entire length a massive moulded oak cill resting upon a lower one of Bath stone. All the lower panelling, and the seventeen continuous bays above (which constitute the entire screen), are also under renovaiton. The paint has been removed, and new carved work is being substituted for that which through neglect and decay has for years been missing. Mr. Hems has also, to Mr. Christian's designs, adapted the ornate old Jacobean reading-desk and the quaint pulpit, which dates from Grinling Gibbons's period, to modern requirements. The general contractor was Mr. Evans, of Paignton. The Ecclesiastical Commissioners, who own the greater part of the land in the neighbourhood, have been at the main expense of the present restoration.

Wincle (Cheshire).—St. Michael's Church, Wincle, built in the reign of Charles I., altered about the year 1790; again altered, reseated, and a tower added about the year 1820, and then only a plain, square, barn-like erection, with a flat ceiling,—was re-opened on the 13th inst. by Bishop Kelley, acting for the Lord Bishop of Chester, after entire restoration, from the designs and under the superintendence of Mr. Edward Witts, architect, the contractor being Mr. Moores, of Macclesfield, assisted by Mr. Gladwell, joiner, and Mr. Westwood, glazier, &c. The seating and fittings are in pitch-pine, lightly stained, and varnished. The chancel fittings were given by the vicar and his friends, the pulpit by the contractor and the joiner, the reading-desk and Glastonbury chair by the architect, and the lectern by the Vicar of North Rode. The entire cost is about 1,200*l.*, including a marble and stone reredos, given by the Misses Newbold.

STAINED GLASS.

Lympne (Kent).—The new stained glass in the chancel of this ancient church (dedicated to St. Stephen) was thrown open to view at Eastertide. The chancel has three lancet windows, with a small circular opening above the central one. The subject of the central window is the Crucifixion, at the point of time when the dying Lord committed his mother to St. John's charge. The legend text is "Woman, behold thy son." The glass is in thirteenth-century style, and is from the studio of Messrs. Powell, Bros., of Leeds.

Ordsall Church, Retford. — Messrs. Camm Bros., of Smethwick, have designed and executed three stained-glass windows for the above church. Two of them have been placed in the west end aisle by Mrs. Brough in memory of her two daughters, Julia Elizabeth and Louisa. The subjects are "Our Lord Blessing little Children," and "The Good Shepherd." The third window, in the chancel, is the gift of Mr. Robert Newbold, and consists of five lights and tracery. Subjects: "The Resurrection," occupying the three centre lights; and "Giving Sight to Blind Bartimæus," and "The Blind Man bearing his Testimony before the Sanhedrim," in the two outside lights. The tracery lights are occupied by "The Ascension" and figures of Moses and Elias.

SCHOOL BUILDING NEWS.

Hebburn.—On the 10th inst. a building intended for use as a Sunday-school and lecture-hall, erected in connexion with St. Cuthbert's Church, Hebburn, Northumberland, was publicly opened. The building has been constructed from plans prepared by Mr. Morton, of South Shields.

Wellingborough.—The opening services in connexion with the new All Saints' School Chapel on the Finedon-road took place on Easter Tuesday. The room has been built from plans by Mr. W. T. Brown, architect, and is of red pressed bricks, relieved with Bath stone dressings, and roofed with ornamental tiles. The school is 40 ft. long by 20 ft., with one bay divided off to form a small chancel by an open arched screen, and raised two steps above the floor of the other part of the room. The chancel is provided with altar-table, lectern, &c., which, together with the altar frontal, dorsal hangings, &c., were all gifts to the chapel. Attached to the building is a cloak-room and lobby. The play-ground, enclosed by wood fencing, surrounds the building, the style of which is Gothic of a late character.

Books.

A Treatise on Rivers and Canals, relating to the Control and Improvement of Rivers, and the Design, Construction, and Development of Canals. By L. F. V. HARCOURT, C.E. Oxford: The Clarendon Press. 1882.

"RIVERS and Canals," so-called in the short title on the back and on the first page, forms a useful contribution to a class of literature which is assuming considerable importance. We mean a class containing books of a comprehensive but elementary nature, the true area for the utility of which lies in those wide fields open to the engineer in the Colonies, of which we heard something the other day at the annual dinner of the Institution of Civil Engineers. Far away from cities, professional library, or senior adviser of experience to consult, the young engineer in India or Australia will find in this volume a very useful handbook. The object of the writer, has been, he tells us, to "present, in a simple and concise form, descriptions of the principal and most recent works on rivers and canals, and the principles on which they are based." In the book, however, this order is reversed. Mr. Vernon Harcourt first treats of the meteorological and hydraulic phenomena of rivers, of the measurement of river discharge, of the early and later stages of river navigation, and of the construction and supply of canals. He then enters into the practical questions of dredging-machines and appliances, of fascine work, piles, and coffer-dams; of foundations, of the works for affording a passage from one water level to another, of weirs, and of various works on rivers and canals. This part of the volume is clear and concise, dealing fairly and appropriately with the subject, and leaves little to desire except such a distinct reference to the authorities relied on as might be available to the student who has access to a library. Thus the expressions, "it is necessary, according to Professor Rankine" (p. 41), and "is estimated by Professor Rankine," rather stimulate than satisfy the curiosity to see what are the actual words of that eminent writer; especially as to such an allowance as a loss of 2 in. of water per day over the whole surface of a canal.

Ten chapters are occupied with the foremention subjects. The eleventh chapter is a brief, hasty, and inadequate performance, in no way up to the level of the rest of the book. It is headed "History of Inland Canals." The facts stated are few, and the statements are not always accurate. Thus we find, "There are 300 miles of canals in Ireland," the fact being that there are 392 miles of canals and river navigations in possession of companies, 133 miles under the control of local masters, and 227 miles under Public Works Commissioners,—in all 752 miles, instead of 300.

The inadequate mode of dealing with this part of the subject is the more to be regretted from the fact that where there is one man who wishes to be instructed as to the method of making a canal, there are hundreds who are anxious to know what canals are in existence, what canals are in process of construction, and at what cost traffic can be conveyed on canals, as compared to railways. It is hardly too much to say that this is *the* industrial question of the day. As such, at all events, it is regarded to a great extent by manufacturers, and discussed by Chambers of Commerce throughout England. To treat it with any approach to accuracy would require not a chapter, but a volume. Still, something useful might have been said in a chapter, and, above all, what little was said ought to have been correct.

In the next chapter, on Ship Canals, Mr. Vernon Harcourt does more justice to his subject and to himself. The short notice of the Languedoc Canal has all the more interest from the fact that the construction of a new Ship Canal from the Mediterranean to the Bay of Biscay is at this very moment under discussion in the French Cabinet. "The summit level at Naurose," we are told, "is 610 feet above the Mediterranean." The total length of the main line is about 140 miles, and there are 119 locks and aqueducts over 55 rivers and streams. In June, 1876, a project was brought forward for a "Grand Canal du Midi," which proposed to transform this ancient and once very useful work into an open canal without locks, the bed of which would be 32 ft. below high-water level. A contemporary in reviewing the project, estimated the amount of excavation requisite at nearly 10 milliards of cubic yards (9,955,869,737) which it would take 200,000 workmen ninety-one years to excavate. M. Manier, the projector, did not impeach these calculations, but met them by an estimate of a yearly revenue of 7,700,000*l.* As the gross receipts of the Suez Canal, with its unique position of the gateway between the East and the West, amounted, in 1880, to 1,200,000*l.*, M. Manier cannot be accused of any despondency as to the maritime future of France.

There is a good account of the Amsterdam Ship Canal, abstracted, as are most of the following descriptions, from the excellent authority of the Minutes of Proceedings of the Institution of Civil Engineers. The account of the Fen Rivers, chiefly taken from Mr. Wheeler's "History of the Fens," is also clear, though brief. Three chapters on the improvement of tidal rivers will be read with interest and advantage. The accounts of the Liffey, the Yare, the Clyde, the Tyne, and the Tees are taken from the "Minutes." There is a want of references as to the other instances cited, but the work is done clearly and well, and Mr. Vernon Harcourt shows himself a careful abstracter. But the cases which he selects must be regarded rather in the light of vignette illustrations, so to speak, of the various methods adopted by river engineers, than as a general description of river and canal communication. So far, indeed, is the author from attempting such a work on navigation as is supplied, with reference to France, by M. Félix Lucas, in his "Étude Historique et Statisque sur les Voies de Communication de la France," that he describes the future works of the Panama Canal with as much gravity as the actual engineering of other parts of the world. And he has done so while citing on one page the unqualifiable assertion of M. de Lesseps "that the construction of a Ship Canal across the Isthmus of Panama presents fewer difficulties

direction. When any discharge is made from a water-closet, so far from checking the current, it will accelerate and promote it, and the foul air which may be in the sewer will be carried up the second pipe, from which there is no opening into the house, or indeed anywhere except above the roof. In sultry weather, when there is no wind, what gas may be generated in the drains and pipes will find its way out by one or other of the pipes, whichever offers least resistance; but even then the downward action of the water-closet discharge will be in favour of the gas making its escape by the upward pipe.

I have seen the two pipes and the two cowls above the roof proposed before, but never the downward current of air through the soil-pipe. The plan explained in the 65th paragraph of the Local Government Model By-laws provides an inlet for air near the surface of the ground and an upward current of air through the soil-pipe.

H. P. B.

ARCHITECTS' QUANTITIES.

NEW MODE OF PAYMENT.

IT has hitherto been the custom to pay for the quantities and lithography by the builder out of the first instalment, for then there is an inducement for the architect to give the builder a certificate as soon as he is entitled to it. But who ever heard of a builder being compelled to pay for the quantities before he has a certificate? and what inducement has the architect then to be in a hurry to give the builder a certificate? The amount thus to be paid by the builder is between 300*l.* and 400*l.* This, with the tyrannical clauses in the specification and the exorbitant security the builder is asked to provide, places him at the mercy of the architect.

The work to which I allude is proposed to be done in enlarging the Hendon Union. Surely no builder will be found to do the works under those terms. I have had more than forty years' experience in quantities and estimates, but this beats all I have ever seen or heard.

J. P.

SLAMMING OF DOORS.

SIR, Can any of your readers inform me of the best practical method for obviating noise in the closing of doors? The rooms in my house are mostly floored round the margin with parquet, and, as the doors shut very easily we are constantly disturbed by "slams," which I am very desirous of obviating.

ALPHA.

STREET PAVEMENTS.

LIVERPOOL ENGINEERING SOCIETY.

THE fortnightly meeting of this Society was held at the Royal Institution, on Wednesday evening last week, Mr. F. Salmon, president, in the chair, when a paper was read by Mr. Jas. Morgan on "The Construction of Impervious Street Pavements, with special reference to the methods practised in Liverpool." In introducing the subject, the writer stated that previous to 1872 impervious pavements had no existence in Liverpool, and although the late Mr. Newlands, in his published report to the Health Committee, in 1848, strongly recommended, on sanitary grounds, the construction o pitch-jointed impervious pavements, no action was taken for twenty-four years, when the carriage-way of North John-street was re-constructed. The obvious advantages of the system soon became so apparent that at the present time there are within the city not less than 650,000 superficial yards of impervious pavements, all laid within nine years by the workmen of the corporation. This work has mainly been carried out in business streets and leading thoroughfares, but the writer urged the importance of extending the system more generally to the back streets in the densely populated parts of the city, to the entire abolition of boulder paving, with its filth-holding joint. The writer then described in detail the construction of the various classes of pavements and concrete foundations laid in Liverpool, exhibiting specimens of the material used in the work. In referring to wood pavement the author remarked that though the use of wood as a paving material has been strongly advocated of late years by tradesmen in busy thoroughfares, where the continuous din of city traffic is a great hindrance to the carrying on of their business, and a noiseless pavement would be a boon, yet want of knowledge and carelessness in its construction have prevented it from receiving the encouragement from engineers that it undoubtedly deserves. Though next to macadam the most expensive pavement to maintain, yet this excessive cost is counter-balanced by the comfort and quietness afforded in thoroughfares where these conditions are essential to the carrying on of business.

Wolverhampton. — St. Matthew's Church, Wolverhampton, has been re-opened, after having undergone thorough renovation and repair. The work has been carried out by Messrs. Bradney & Co., of Wolverhampton, at a cost of about 250*l.*

THE GREEK TRIGLYPH.

SIR,—Mr. Fergusson has invited your readers to discuss the ingenious theory of the origin of the Greek triglyph, which he has described in your number of the 15th inst. He will, therefore, I hope, permit me so far to accept his challenge as to contribute to the discussion a few difficulties which have occurred to my own mind, and which seem to stand in the way of an unhesitating acceptance of the hypothesis.

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The Social Science Association.—The Secretary of the Association, Mr. J. Clifford-Smith, has issued a handy little pamphlet, entitled "Hints and Regulations for Congresses," which will be found useful, not alone by members and those desiring to become members, but by town councils and other bodies of the kind who would like a visit to their respective towns from the Social Science Association, but do not know how to bring it about, or what it would involve.

CHURCH-BUILDING NEWS.

Horley.—The parish church of St. Bartholomew, Horley, Surrey, has been re-opened after restoration. The church, which is a commodious edifice, in the Late Early English style of architecture, consists of nave, chancel, and north and south aisles, and on the south side a transept was added towards the end of the last century, and fitted up with pews, belonging to Gatwick House. At the north-west angle is a shingled tower, containing eight bells, surmounted by an octagonal spire. The church contains some fine brasses. The present restorations have been carried out by Messrs. Parmenter, builders, of Braintree, at a cost of between 2,000*l*. and 3,000*l*., under the supervision of Mr. A. W. Blomfield, M.A. The roof of the nave has been stripped of its whitewash, and the old galleries removed. The organ-gallery, which was formerly over the north door, has been taken down and replaced in the Gatwick Chapel. The old screen around the steeple has been removed, and a platform, with balustrade, erected at the end of the north aisle for the ringers. The fine peal of eight bells, two of which were hung as recently as 1840, has been rehung in a new frame, whilst the tower and steeple have been braced up and strengthened. The windows round the church have been remodelled, but the original designs preserved. The east window has been filled with stained glass in memory of the late Rev. William Holled Hughes, B.A., vicar of the parish from 1853 to 1871. A painted window, from the studio of Mr. Taylor, of Berners-street, London, having for its subject "The Good Samaritan," has been erected at the west end by Mr. John Maple, of Horley and London, in memory of his son. The old font, of simple Norman design, has been transferred to the west end.

Staverton.—This church, pleasantly situated upon the picturesque river Dart, was re-used for the first time on Easter Sunday, after the restoration of nave and aisles. The chancel was restored a few years ago from the designs of Mr. Ewan Christian, and now, at the hands of the same gentleman, the body of the church has been taken in hand. The main points of the general work are the new roofs and windows, and the replastering of walls. The old piers and arcades have been thoroughly overhauled, the various internal approaches have been laid with encaustic tiles by Messrs. Minton Hollins, & Co., of Stoke-upon-Trent; and new open benches have taken the place of the former unsightly pews. The church contains very good fifteenth-century rood and parclose screens. These are of oak, richly carved and of exquisite detail. The former has an unbroken run from north to south of upwards of 50 ft. It is in the hands of Mr. Harry Hems, of Exeter, who has underpinned it, and placed beneath its entire length a massive moulded oak sill resting upon a lower one of Bath stone. All the lower panelling, and the seventeen continuous bays above (which constitute the entire screen), are also under renovaiton. The paint has been removed, and new carved work is being substituted for that which through neglect and decay has for years been missing. Mr. Hems has also, to Mr. Christian's designs, adapted the ornate old Jacobean reading-desk and the quaint pulpit, which dates from Grinling Gibbons's period, to modern requirements. The general contractor was Mr. Evans, of Paignton. The Ecclesiastical Commissioners, who own the greater part of the land in the neighbourhood, have been at the main expense of the present restoration.

Wincle (Cheshire).—St. Michael's Church, Wincle, built in the reign of Charles I., altered about the year 1790; again altered, recasted, and a tower added about the year 1820, and then only a plain, square, barn-like erection, with a flat ceiling,—was re-opened on the 13th inst. by Bishop Kelley, acting for the Lord Bishop of Chester, after entire restoration, from the designs and under the superintendence of Mr. Edward Witts, architect, the contractor being Mr. Moores, of Macclesfield, assisted by Mr. Gladwell, joiner, and Mr. Westwood, glazier, &c. The seating and fittings are in pitch-pine, lightly stained, and varnished. The chancel fittings were given by the vicar and his friends, the pulpit by the contractor and the joiner, the reading-desk and Glastonbury chair by the architect, and the lectern by the Vicar of North Rode. The entire cost is about 1,200*l*., including a marble and stone reredos, given by the Misses Newbold.

STAINED GLASS.

Lympne (Kent).—The new stained glass in the chancel of this ancient church (dedicated to St. Stephen) was thrown open to view at Eastertide. The chancel has three lancet windows, with a small circular opening above the central one. The subject of the central window is the Crucifixion, at the point of time when the dying Lord committed his mother to St. John's charge. The legend text is "Woman, behold thy son." The glass is in thirteenth-century style, and is from the studio of Messrs. Powell, Bros., of Leeds.

Ordsall Church, Retford. — Messrs. Camm Bros., of Smethwick, have designed and executed three stained-glass windows for the above church. Two of them have been placed in the west end aisle by Mrs. Brough in memory of her two daughters, Julia Elizabeth and Louisa. The subjects are "Our Lord Blessing little Children," and "The Good Shepherd." The third window, in the chancel, is the gift of Mr. Robert Newbold, and consists of five lights and tracery. Subjects: "The Resurrection," occupying the three centre lights; and "Giving Sight to Blind Bartimæus," and "The Blind Man bearing his Testimony before the Sanhedrim," in the two outside lights. The tracery lights are occupied by "The Ascension" and figures of Moses and Elias.

SCHOOL BUILDING NEWS.

Hebburn.—On the 10th inst. a building intended for use as a Sunday-school and lecture-hall, erected in connexion with St. Cuthbert's Church, Hebburn, Northumberland, was publicly opened. The building has been constructed from plans prepared by Mr. Morton, of South Shields.

Wellingborough.—The opening services in connexion with the new All Saints' School Chapel on the Finedon-road took place on Easter Tuesday. The room has been built from plans by Mr. W. T. Brown, architect, and is of red pressed bricks, relieved with Bath stone dressings, and roofed with ornamental tiles. The school is 40 ft. long by 20 ft., with one bay divided off to form a small chancel by an open arched screen, and raised two steps above the floor of the other part of the room. The chancel is provided with altar-table, lectern, &c., which, together with the altar frontal, dorsal hangings, &c., were all gifts to the chapel. Attached to the building is a cloak-room and lobby. The play-ground, enclosed by wood fencing, surrounds the building, the style of which is Gothic of a late character.

Books.

A Treatise on Rivers and Canals, relating to the Control and Improvement of Rivers, and the Design, Construction, and Development of Canals. By L. F. V. HARCOURT, C.E. Oxford: The Clarendon Press. 1882.

"RIVERS and Canals," so-called in the short title on the back and on the first page, forms a useful contribution to a class of literature which is assuming considerable importance. We mean a class containing books of a comprehensive but elementary nature, the true area for the utility of which lies in those wide fields open to the engineer in the Colonies, of which we heard something the other day at the annual dinner of the Institution of Civil Engineers. Far away from cities, professional library, or senior adviser of experience to consult, the young engineer in India or Australia will find in this volume a very useful handbook. The object of the writer, has been, he tells us, to "present, in a simple and concise form, descriptions of the principal and most recent works on rivers and canals, and the principles on which they are based." In the book, however, this order is reversed. Mr. Vernon Harcourt first treats of the meteorological and hydraulic phenomena of rivers, of the measurement of river discharge, of the early and later stages of river navigation, and of the construction and supply of canals. He then enters into the practical questions of dredging-machines and appliances, of fascine work, piles, and coffer-dams; of foundations, of the works for affording a passage from one water level to another, of weirs, and of various works on rivers and canals. This part of the volume is clear and concise, dealing fairly and appropriately with the subject, and leaves little to desire except such a distinct reference to the authorities relied on as might be available to the student who has access to a library. Thus the expressions, "it is necessary, according to Professor Rankine" (p. 41), and "is estimated by Professor Rankine," rather stimulate than satisfy the curiosity to see what are the actual words of that eminent writer; especially as to such an allowance as a loss of 2 in. of water per day over the whole surface of a canal.

Ten chapters are occupied with the foregoing subjects. The eleventh chapter is a brief, hasty, and inadequate performance, in no way up to the level of the rest of the book. It is headed "History of Inland Canals." The facts stated are few, and the statements are not always accurate. Thus we find, "There are 300 miles of canals in Ireland," the fact being that there are 392 miles of canals and river navigations in possession of companies, 133 miles under the control of local masters, and 227 miles under Public Works Commissioners,—in all 752 miles, instead of 300.

The inadequate mode of dealing with this part of the subject is the more to be regretted from the fact that where there is one man who wishes to be instructed as to the method of making a canal, there are hundreds who are anxious to know what canals are in existence, what canals are in process of construction, and at what cost traffic can be conveyed on canals, as compared to railways. It is hardly too much to say that this is *the* industrial question of the day. As such, at all events, it is regarded to a great extent by manufacturers, and discussed by Chambers of Commerce throughout England. To treat it with any approach to accuracy would require not a chapter, but a volume. Still, something useful might have been said in a chapter, and, above all, what little was said ought to have been correct.

In the next chapter, on Ship Canals, Mr. Vernon Harcourt does more justice to his subject and to himself. The short notice of the Languedoc Canal has all the more interest from the fact that the construction of a new Ship Canal from the Mediterranean to the Bay of Biscay is at this very moment under discussion in the French Cabinet. "The summit level at Naurose," we are told, "is 610 feet above the Mediterranean." The total length of the main line is about 140 miles, and there are 119 locks and aqueducts over 55 rivers and streams. In June, 1876, a project was brought forward for a "Grand Canal du Midi," which proposed to transform this ancient and once very useful work into an open canal without locks, the bed of which would be 32 ft. below high-water level. A contemporary in reviewing the project, estimated the amount of excavation requisite at nearly 10 milliards of cubic yards (9,955,869,737) which it would take 200,000 workmen ninety-one years to excavate. M. Manier, the projector, did not impeach these calculations, but met them by an estimate of a yearly revenue of 7,700,000*l*. As the gross receipts of the Suez Canal, with its unique position of the gateway between the East and the West, amounted, in 1880, to 1,200,000*l*., M. Manier cannot be accused of any despondency as to the maritime future of France.

There is a good account of the Amsterdam Ship Canal, abstracted, as are most of the following descriptions, from the excellent authority of the Minutes of Proceedings of the Institution of Civil Engineers. The account of the Fen Rivers, chiefly taken from Mr. Wheeler's "History of the Fens," is also clear, though brief. Three chapters on the improvement of tidal rivers will be read with interest and advantage. The accounts of the Liffey, the Yare, the Clyde, the Tyne, and the Tees are taken from the "Minutes." There is a want of references as to the other instances cited, but the work is done clearly and well, and Mr. Vernon Harcourt shows himself a careful abstracter. But the cases which he selects must be regarded rather in the light of vignette illustrations, so to speak, of the various methods adopted by river engineers, than as a general description of river and canal communication. So far, indeed, is the author from attempting such a work on navigation as is supplied, with reference to France, by M. Félix Lucas, in his "Étude Historique et Statisque sur les Voies de Communication de la France," that he describes the future works of the Panama Canal with as much gravity as the actual engineering of other parts of the world. And he has done so while citing on one page the unqualifiable assertion of M. de Lesseps "that the construction of a Ship Canal across the Isthmus of Panama presents fewer difficulties

than the Suez Canal," while he tells us in another page that for the latter "no constructive works of any magnitude had to be executed." Considering that the Culebra cutting of 8 miles long varies from a depth of 100 ft. to that of 300 ft., through a pass of the Cordillera, the idea of what constitutes engineering difficulties is not quite distinct.

The plates, which form a separate volume, are clear and good. There are twenty-one plates, all folded, and twenty woodcuts in the text. The work can be safely commended to the student, who will find brought together in its pages much for which he would have to search widely in order to collect it for himself. If the book had been called "River and Canal Engineering," instead of "Rivers and Canals," the title would have more clearly indicated the contents. As giving a view of the methods of construction, it is useful and reliable. This is all that it seriously attempts; and our testimony to its value might have been more unhesitating if we had not been led by the title to expect some much-needed information as to the state and the cost of the inland navigation of the time.

After the preceding lines were written, we observed the very significant announcement that part of the contract for rails recently advertised for by the Hull and Barnsley Railway Company has been taken by Herr Krupp, of Essen, who has thus under-tendered the Sheffield and the Middlesbrough makers. If this be a correct statement, it is difficult to exaggerate its importance. The bearing of the case is too wide for a full discussion in columns which maintain the reserve imposed on our own, on certain subjects. But as to the question of water carriage, the fact deserves investigation. The rails will be sent, it is said, by water, from Essen to Hull. If we take the performances of steam colliers as determining the cost (per mile) of sea transport, we have the following comparative costs for the conveyance of rails:—

By sea (steam) per ton per mile	.....		0·156
By canal	,,	,,	..... 0·400
By rail	,,	,,	..... 0·780

The distance from Hull to Bremen Haven is 372 miles; that from Sheffield to Hull, by rail, is above sixty miles; but the cost of the former mode of transport is one-fifth of that of the latter per mile. It is thus tolerably clear that the taking of a tender may, and probably very often does, depend on the command of the means of water transport.

We do not say that the Sheffield manufacturers actually pay eight-tenths of a penny per ton per mile for the carriage of rails. They very possibly make much more favourable terms with the companies. But that is by no means the whole question. The figures are forthcoming, if required, to show that the actual cost of the conveyance, including 4½ per cent. per annum interest on the capital, which is the mean return on the capital of the railways of the United Kingdom, reaches that figure. If a lower rate is made, it can only be at the cost, either of the railway shareholders or of the other customers of the companies. In point of fact, it is probably the passenger who pays,—the large profits of the passenger traffic covering the deficiency of the mineral traffic, a deficiency which, taking interest into account, there is no serious attempt on the part of railway managers now to deny, as they have admitted the error of their former statements as to the lucrative character of this traffic. But whether the manufacturer pays as a passenger or as a freighter matters little. The broad fact has to be faced that a railway is a far more expensive medium of transport than either sea, river, or canal. And not a month passes without some indication that the future of our manufacturing industry is deeply concerned in the recognition of this fact.

An Attempt to Discriminate the Styles of Architecture in England, from the Conquest to the Reformation; with a Sketch of the Grecian and Roman Orders. By the late THOMAS RICKMAN, F.S.A. Seventh edition, with considerable additions, chiefly Historical, by JOHN HENRY PARKER, F.S.A. Parker & Co., Oxford; and 6, Southampton-street, Strand, London. 1881.

We answer an inquiry from Yorkshire, "Whether Rickman is in print?" by printing the above heading. This edition was published in the course of last year, and is, in some respects, the most complete, and is beautifully illustrated. We must, nevertheless, regret that much of what had been collected by Rickman concerning Anglo-Saxon buildings is omitted in the present edition, though the reason given is that it will form part of a supplemental volume, treating of the style at greater length as a whole.

Miscellanea.

The Beaconsfield Memorial at Hughenden.—A special service of dedication of the completed memorial to the Earl of Beaconsfield was held in the parish church at Hughenden on Wednesday last, which was the first anniversary of his death. The memorial consists of a sculptured marble tablet, bearing a portrait of Lord Beaconsfield, presented by the Queen; a stained glass window over the altar, presented by Lord Rowton, Sir Nathaniel de Rothschild, and Sir Philip Rose; a stained-glass window on the south side of the nave, presented by the undergraduates of Oxford; the west window, an organ, and the decoration of the chancel, the cost of which will be defrayed out of the general Hughenden Memorial Fund; two bells to complete the peal, presented by Mr. Robert Warner; and a pair of brass candelabra, presented by two members of Lord Beaconsfield's household. The monument erected by command of her Majesty is of gray Sicilian marble, with a large quatrefoil in the centre of pure white Carrara marble bearing a likeness in profile of the late Earl, executed in relief by Mr. R. C. Belt. Above are sculptured in high-relief the coat-of-arms of Lord Beaconsfield, and below, on a tablet, supported by a carved wreath of oak-leaves, is the inscription, "To the dear and honoured memory of Benjamin, Earl of Beaconsfield. This memorial is placed by his grateful Sovereign and friend, Victoria R. I. 'Kings love him that speaketh right.'—Proverbs xvi., 13.—February 27, 1882." The monument is on the north side of the chancel, and immediately over the stall in which Lord Beaconsfield used to sit. The west window and the south window complete a series, the subjects illustrated being the appearances of angels recorded in Holy Scripture. The words of the *Te Deum* have suggested the subject of the east window. This and all the windows of the nave are the work of Messrs. Clayton & Bell. The decoration of the chancel walls in fresco, with some elaborate and beautiful work in the sanctuary, has been carried out by Messrs. Heaton, Butler, & Bayne.

City Churches and their Sites.—The Bishop of London's Bill, now before Parliament, proposes the appointment of seven "City Benefices Commissioners" to carry out the union of City livings, &c. The functions selected for these Commissioners are, among others,—(1) To inquire into the ecclesiastical revenues of all benefices situate within the "area of union"; (3) to make schemes for removing any parish churches within the area of union as, in their opinion, are not needed for the celebration of Divine service, and also for the sale of the materials and sites of the churches and parsonages; (4) to make schemes for the application of any surplus of ecclesiastical revenues arising from these unions and sales to ecclesiastical purposes within the "area of distribution"; and this area is defined as being the City, and all parishes and places under the jurisdiction of the Metropolitan Board, together with the parishes of Barking, East Ham, West Ham, Little Ilford, Low Leyton, Walthamstow, Wanstead, St. Mary Woodford, and Chingford. The preservation and maintenance of the tower may be provided for in any scheme for removing a church. Tablets and monuments may be transferred to some old church left standing in the "area of union," or to some new church to be erected in the "area of distribution." When a church is removed its site is to be sold by public tender to the highest bidder. However, any portion may, with the sanction of the Queen in Council, be given for the improvement of public thoroughfares.

Masonry and the City Architect.—The *Freemason* says:—"His Royal Highness the Prince of Wales has appointed Mr. Horace Jones, the City Architect, Grand Superintendent of Works of the Grand Lodge of English Freemasons. Mr. Jones will be invested with the insignia of the new office by the Right Hon. the Earl of Lathom, Right Worshipful Deputy Grand Master, at the Grand Festival at Freemasons' Hall, Great Queen-street, W.C., on Wednesday, the 26th inst."

Copyright in Fine Arts.—The Copyright Committee of the Law Amendment Society have not been inactive since the withdrawal at the close of the last session of Parliament of their Bill dealing with copyright in works of literature, music, the drama, and the fine arts. In view of the state of Parliamentary business, and considering, moreover, the interests of the various departments of Government that their original measure would have affected, it is thought that the most practical line of action for the present session will be, in the first place, to proceed with a Bill confined to the requirements of the fine arts and photography only, leaving music and the drama to be dealt with by them hereafter. The committee have, therefore, introduced such a measure into Parliament. It has been drawn substantially on the lines of the Royal Academy's memorial to her Majesty's Government, which received the warm support of artists generally; and it will, moreover, the committee venture to think, be entitled to the approval of the public. Their present Bill is to amend and consolidate the law of copyright in works of fine-art and in photographs, and for repressing the commission of fraud in the production and sale of such works. It is proposed that the duration of copyright should extend in the case of paintings and sculpture to thirty years after the death of the artist, and in the case of engravings to fifty years from the time of publication. In the case of photographs, the term is also to be fifty years; but photographic portraits taken on commission are not to be sold or exhibited in shop-windows without consent of the person photographed. The Bill bears the names of Mr. Hastings, Lord Sandon, Mr. Hanbury-Tracy, Sir Gabriel Goldney, and Mr. Agnew, and the committee are desirous of acknowledging the great obligation they are under to Mr. Basil Field for undertaking the responsibility of drafting the measure.

Stockwell Park House.—Another relic of Old London is about to pass away. Stockwell Park House, in Stockwell-road, a mansion of Queen Anne's time, has been lately put up to auction and sold, along with its Italian garden, lawn, and kitchen garden, which presented many of the same features as those of the Tradescants at Lambeth. They occupy about four acres, and are studded with some very fine cedars and chestnuts. The house, like most of the mansions of the time, is built of fine red bricks, but of late years it has been covered with stucco, and the oak panelling of the rooms, staircases, and passages inside has been painted white. Over the front entrance are the arms of the Angell family, to whom the estate belonged, and who gave their name to the Angell-town estate at Brixton. With the arms of Angell are impaled those of Sir John Gresham, a near relative of Sir Thomas Gresham. The old iron gates which divided the Italian from the kitchen garden were very fine specimens of scrolled ironwork. The house will be pulled down very shortly, when the site will be utilised for building purposes. Stockwell has of late years lost almost all of its quiet, semi-rural aspect, owing to the operations of the builder, and the change now noted will obliterate the last of its notable landmarks.

Presentation to a Surveyor.—At a special meeting of the St. George Local Board, held upon the 19th of April, at the Parochial Offices, St. George, Bristol, at which every member of the Board was present, Mr. Wm. Butler in the chair, an illumined testimonial upon vellum was presented to the surveyor, Mr. W. Dawson, upon his leaving the district, Mr. Dawson having been appointed engineer and surveyor to the Leyton Local Board, near London.

The Church of St. Lawrence, Morecambe, has just been enriched by the addition of a handsome pulpit, executed in alabaster and serpentine marbles, from designs by Messrs. Paley & Austin. The design is square on plan, with a slightly curved front, filled with a representation of "Our Lord's charge to St. Peter," executed in white alabaster. The sculpture and carved details were entrusted to Mr. Roddis, of Birmingham, and the masonry portion was executed by Mr. Heap, of Lancaster.

Hartlepool.—On the 11th inst. Mr. William Gray, J.P., laid the foundation-stone of a new Presbyterian Church, at the top of Union-street. The design is by Mr. T. L. Banks, of London, and its estimated cost is 4,500*l.*, exclusive of the site, which will be more than covered by the sale of the old chapel for 730*l.*

House Property in Paris.—M. Paul Leroy Beaulieu, in the *Economiste Français*, publishes an interesting article on house property in Paris, and the *Times* gives an account of it. Paris is rapidly gaining in size. She adds some 50,000 or 60,000 souls annually to her population, four-fifths of whom are workpeople and small *employés*, and yet, wherever you go, what most strikes your eye is that nowhere are modest dwellings in course of construction. The tendency is to construct excessively, at rents varying from 5,000f. to 30,000f., expensive abodes; and M. Leroy Beaulieu thinks a house property crisis must soon break out, which will considerably reduce rents for a few years. Just as the very dear apartments must diminish in rent as they increase in number, he argues, the more modest dwellings will increase in rent, owing to the proportion of construction not keeping pace with the influx of population. Not only, in fact, is the proportion of increase of dwellings of a modest character small, but great numbers of such dwellings have been and are being pulled down to make way for grand boulevards and avenues stocked with expensive apartments, thus producing an ever-increasing disproportion between the two classes of abodes. A table he supplies from the property register shows the proportion of the different classes of abodes in 1878. Apartments of a rent not exceeding 300f. are numbered 468,641; of 301f. to 500f., 74,360; of 500f. to 750f., 61,083; of 750f. to 1,000f., 21,147; of 1,000f. to 1,250f., 17,202; of 1,250f. to 1,500f., 6,198; of 1,500f. to 3,000f., 21,453; of 3,000f. to 6,000f., 9,985; of 6,000f. to 10,000f., 3,049; of 10,000f. to 20,000f., 1,453; of upwards of 20,000f., 421; total, 684,992.

The Coachmakers' Company.—The exhibition which was held during last week at the Mansion House of drawings sent in for competition for prizes offered by the Coachmakers' Company and by the Committee of the St. Mark's Drawing and Technical School for Coach Workmen and Apprentices, was brought to a close on Friday, when the prizes were distributed by the Lord Mayor. The judges were Mr. Thorn, the master; Mr. Thrupp and Mr. C. H. Woodall, the wardens; and Messrs. Robinson, J. F. Woodall, and Chancellor, past masters of the Company. They stated that in all there were twenty-six competitors, showing a great increase on the numbers of last year. As to the free-hand drawings of foliage or ornaments, there were thirteen competitors, with thirty-one exhibits, and of the bulk of those drawings they could scarcely speak too highly. The first prize in that class, consisting of a silver medal and 4*l.*, with the Company's certificate, they awarded to E. H. Harris, a coach-body maker, of 20, Huntley-street, aged twenty; the second to Edward Hewer, of Southampton, aged fifteen; the third to William Phillipson, of Newcastle-upon-Tyne, aged eighteen; and other prizes to E. Troup, of Northampton, aged fourteen, and Henry Hewer, of Ryde, aged twenty-two.

A New Roman Catholic Church at Coleshill, Warwickshire, was consecrated last week. The building has been designed by Mr. G. H. Cox, in the Early English style. The contract has been carried out by Mr. Rowbotham, of Birmingham, and Mr. Roddis, of Birmingham, executed the carvings.

TENDERS

For workmen's dwellings, Sugar House-lane, Stratford. Mr. F. Whitmore, architect:—

Bolton & Lee	£4,903 0 0
Crockett	4,506 0 0
Niblett	4,442 0 0
Rathum Bros.	4,400 0 0
Martin	4,325 0 0
Redding	4,157 0 0
Jones	3,985 0 0
Wood	3,893 0 0
Buckell	3,880 0 0
Nicholls	3,799 0 0
Falcon	3,794 0 0
Anger	3,787 0 0
Boston	3,779 0 0
Bartlett	3,730 0 0
Taylor & Ditch	3,715 10 0
Bragger	3,653 0 0
Gregor	3,589 0 0
Brightmore	3,572 0 0
Sharman	3,550 0 0
Salt	3,530 0 0
Reed	3,345 0 0
Parker	3,299 0 0
Gentry	3,150 0 0
Wheeler	3,115 0 0
Gulles Bros.	3,060 0 0
Capsey	2,950 0 0

For the erection of lodge, entrance-gates, and boundary-wall, stable and farm-buildings, at Hanger-lane, for Mr. John Carver. (Contract No. 2.) Mr. John G. Gibbins, architect:—

John Grover, New North-road (accepted)	£4,394 0 0

For twenty-four houses at Enfield Highway. Mr. F. Whitmore, architect:—

Seward	£6,600 0 0
Marriott	5,230 12 0
Porter	5,047 0 0
A. Wheeler	4,450 0 0
Brightmore	4,407 0 0
W. Wheeler	4,457 0 0
Matchin	4,430 0 0
Bryan	4,320 0 0
Banks	4,300 0 0
Bolton & Lee	4,224 0 0
Finch	4,200 0 0
Everard	4,200 0 0
Reed	4,080 0 0
Wearsley	4,017 0 0
Kirby	4,000 0 0
Martin	3,985 0 0
Capsey	3,970 0 0
Taylor & Co.	3,720 0 0
Newman	3,490 0 0
Riccards	3,550 0 0
Bartlett	3,324 0 0
Bates	3,030 0 0
Gulles	2,825 0 0

For rebuilding 147 and 149, Curtain-road, for Mr. W. Bradshaw. Messrs. N. S. Joseph & Pearson, architects:—

J. Lidstone & Son (accepted)	£3,000 0 0

For erecting house and stables at Hale End, Walthamstow, for Mr. F. Vincent. Mr. J. S. Brown, architect:—

Lipscombe	£993 0 0
Keyle & Wray	756 0 0
S. J. Scott	639 0 0
Barton & Son	625 0 0

For making sundry alterations to premises, No. 41, Great Ormond-street, and for erecting new studio and chambers in rear of same, for Mr. F. B. Walter. Mr. C. H. Flack, architect:—

Gadfield	£3,450 0 0
Harris	2,950 0 0
S. J. Scott	2,943 0 0
Langmead & Way	2,870 0 0
Chapman	2,861 0 0
Quirk	2,610 0 0
Young, Hiskran, & Frayer	2,600 0 0
Wilson & Eckston	2,453 0 0

For Hereford County and City Asylum. Mr. Frederick R. Kempson, architect. Quantities by Mr. J. S. Alder:—

J. Garlick, Saltley	£1,632 0 0
W. Cullis, Hereford	1,500 0 0
E. C. Howell, Bristol	1,490 0 0
Huckson & Warwick, Hereford	1,410 0 0
W. Bowers, Hereford	1,380 0 0
Ashbee & Son, Gloucester	1,347 0 0
J. Jones & Sons, Sedgley	1,300 0 0
J. Clatterbuck, Gloucester	1,275 0 0
H. Welsh, Hereford (accepted)	1,248 0 0
T. Collins, Tewkesbury	1,240 0 0
J. G. Thomas, Abergavenny	1,200 0 0

For six cottages, boundary wall, &c., Sedgmoor-place, Camberwell. Quantities by Mr. W. Heelis:—

Lapthorne	£2,360 0 0
Taylor	2,359 0 0
Smith	2,358 0 0
Pearce	2,295 0 0
Goad	2,255 0 0
Tarrant	2,050 0 0
Holliday & Greenwood	1,999 0 0
Williams	1,987 0 0
Green (accepted)	1,779 0 0

For painting and decorating the Chapel of the Licensed Victuallers' Asylum, Asylum-road, Old Kent-road. Mr. W. F. Potter, architect. Quantities prepared by Mr. C. R. Griffiths:—

E. Toms, Camden Town	£240 0 0
T. Pearson, Peckham	229 15 0
W. Wells, Paddington	195 0 0
J. Anley, Hackney	180 0 0
B. Cook, Farringdon-street	171 0 0
S. Hayworth, Kingsland	161 0 0
F. Hersee, Peckham	150 0 0
W. H. Pritchard, Tooley-street	133 0 0
W. Wythe, Dalston (accepted)	130 0 0

For the re-erection of Nos. 14 and 15, Regent-street, Swindon, and alterations to Nos. 16 and 17. Mr. W. H. Read, architect:—

Jackson	£1,340 0 0
Henley	934 5 8
Barrett	905 16 7
Webb	904 3 4
Wiltshire, Swindon (accepted)	897 0 0

For detached house, Petersfield, Hants. Messrs. Peak, Lunn, & Peak, architects. Quantities supplied:—

	House.	Outbuilding.
Potter, Midhurst	£941 4 3	£83 13 9
Pink, Milford	876 16 0	87 0 0
Finch Bros., Liss	846 14 9	83 19 11
Martin, Wells, & Co., Aldershott and London	810 0 0	82 0 0
W. & H. Lewis, Westmeon	695 0 0	75 0 0
John & A. Gammon, Petersfield (accepted)	659 10 0	67 0 0

For residence, gardener's cottage, &c., at Beckenham, for Mr. R. Fenner. Mr. H. D. Appleton, architect. Quantities by Mr. F. T. W. Miller:—

Higgs & Hill	£7,298 0 0
Jones & Whiffen	7,264 0 0
Colls & Son	6,980 0 0
W. Smith	6,898 0 0
L. & H. W. Roberts	6,846 0 0
Clarke & Bracey	6,836 0 0
Cox	6,295 0 0
Howard & Dorrell (accepted)	6,287 0 0

For additions to Corbett-street Schools, Smethwick, for the Harborne School Board. Messrs. J. P. Sharp & Co., architects. Quantities supplied:—

Marshall	£518 13 0
Harley & Son	435 0 0
W. T. Bennett	417 0 0
W. Whitehouse	417 0 0
Jeffrey & Son, Birmingham (accepted)	416 12 0

For rebuilding Hospital for Diseases of the Throat, Golden-square. Mr. Luck, architect. Quantities supplied:—

Boyce	£9,494 0 0
Longmire & Burge	9,250 0 0
Pritchard	8,975 0 0
Jarvis	8,973 0 0
Patman & Fotheringham	8,967 0 0
Dobson	8,875 0 0
Crockett	8,741 0 0
Carless	8,741 0 0
Brunsden	8,475 0 0
Conder	8,350 0 0
Nye	8,297 0 0
Little	8,299 0 0
Macey	8,227 0 0
Clemence	8,150 0 0
Chappell	8,143 0 0
Lawrance	8,073 0 0
Roberts	8,045 0 0
Adamson & Sons	8,037 0 0
Wall Bros.	7,936 0 0
Perry & Co.	7,888 0 0
Sarjeant	7,888 0 0
Manley	7,695 0 0
Nightingale	7,681 0 0
McLachlan & Sons (accepted)	7,678 0 0

For the formation of about 2,600 feet of new road, 40 feet in width, on the Heath House Estate, Romford. Mr. W. Houghton, surveyor —

R. Nicholson	£1,064 15 0
P. Pound	795 0 0
E. Wilson	650 0 0
T. Huntley	619 5 0
Wilkes & Co.	593 0 0
G. Acock	590 0 0
Wainwright	584 10 0
G. Whitnall	545 0 0
W. G. Harris	501 0 0
J. Bell	459 6 6
J. C. Trueman	455 0 0
W. Armstrong	352 0 0

For block of workmen's dwellings, Brighton. Messrs. Lainson & Son, architects. Quantities supplied:—

Nightingale	£9,228 0 0
Barnes	9,190 0 0
Kirk & Randall	8,799 0 0
Jones & Co.	8,548 0 0
Cheesman & Co.	8,495 0 0
Langley	8,335 0 0

For mill-house, stables, &c., Lambeth Workhouse. Mr. Aldwinckle, architect. Quantities supplied:—

Balsam Bros.	£2,400 0 0
Sharman	2,300 0 0
Dunsford & Clitter	2,267 0 0
Priestley & Gurney	2,214 0 0
J. & H. Mills	1,987 0 0
Parker	1,926 0 0
Tyerman	1,922 0 0
Crockat	1,844 0 0
Wheeler	1,683 0 0
H. & H. Holloway	1,868 0 0
Gentry	1,850 0 0
J. Holloway	1,818 0 0
Gaysford	1,783 0 0
Richardson	1,699 0 0
Shurmur	1,629 0 0

For new Petty Sessions House at Wingham. Mr. F. W. Ruck, architect:—

T. J. Lucas, Sturry	£1,137 0 0
W. J. Adcock, Dover	1,100 0 0
W. J. Wiles & Co., Dover	1,015 0 0
H. Marted, Canterbury	989 4 0
R. M. & H. Whiting, Ospringe	950 0 0
T. H. Lovell, Wingham	947 15 0
G. H. Denne, Deal	945 0 0
W. Cozens, Canterbury	932 0 0
J. Cozens, Canterbury	932 0 0
J. Cornelius, Whitstable	887 0 0
James J. Wise, Deal	879 0 0
W. & S. Denne, Walmer	842 0 0

For the erection of one detached and two semi-detached residences, on the Binley-road, Coventry, for Mr. William Perkins. Mr. Herbert W. Chattaway, architect:—

	Detached.	Semi-Detached.
H. Price, Coventry	£363 0 0	£1,676 0 0
C. Garlick	700 0 0	1,300 0 0
W. Bacon & Son, Foleshill	689 0 0	1,259 0
C. Haywood, jun., Coventry	650 0 0	1,230 0 0
A. Waters, Coventry	628 0 0	1,168 0 0
T. Mayo,* Coventry	588 0 0	1,166 0 0

* Accepted for detached residence.

For additions and alterations to Brockham Park, Betchworth, for Colonel Seymour. Messrs. Harvey & Protheroe, architects. Quantities supplied by Mr. John Leaning:—

	Less, Joinery in Deal.	Old Materials.
Trollope & Sons	£10,343	£367	£ 66
Higgs & Hill	9,680	321	200
Bangs & Co.	9,435	370	200
Hall, Beddall, & Co.	9,320	295	76
Chappell	9,180	328	84
Macey & Sons	9,039	275	90
Brass	8,987	297	100

For repairs and decorations to the London Crystal Palace Bazaar, Oxford-street. Mr. Aug. E. Hughes, architect:—

	Completed in 7 days.
Macintosh	£850 0 0
Perkins	847 0 0
Phillips	756 0 0
McLachlan & Sons*	748 0 0
Foxley	659 0 0

* Accepted, to be completed in ten days, at 698*l.*

For St. Joseph's House Asylum for the Aged Poor Portobello-road, Notting-hill, for Madame Fallon. Mr. Tasker, architect. Quantities supplied:—

Lathey Bros.	£3,453 0 0
Greenwood	3,400 0 0
Dove Bros.	3,375 0 0
Higgs & Hill	3,344 0 0
McLachlan & Sons	3,324 0 0
Adamson & Sons	3,290 0 0

For the erection of a new school in Milton-street, Leicester, for the Leicester School Board. Mr. Edward Burgess, architect. Quantities by Mr. William Thornicraft:—

Kirk & Randall	£4,929	0	0
T. & H. Herbert	4,698	0	0
F. Major	4,665	0	0
J. C. Kellett	4,608	0	0
J. Hutchinson & Son	4,599	0	0
Clark & Garrett (accepted)	4,575	0	0
T. Bland & Sons	4,559	10	0

For alterations and additions to premises at Royston, for Messrs. Fordham, Gibson, & Co. Mr. Edward Burgess, architect. Quantities by Mr. William Thornicraft:—

J. Jacklin	£2,513	0	0
W. Gibbons & Co.	2,344	0	0
T. L. Gimson	2,151	0	0

For alterations and additions to Wood End, Scarborough, for Lady Sitwell. Mr. Edward Burgess, architect. Quantities by Mr. William Thornicraft:—

Smith & Atkinson	£1,510	0	0
Petch & Fox	1,234	18	0
J. Padbury & Son	1,192	0	0
A. G. Wellburn	1,139	0	0
Wm. Jowsey	1,109	0	0
D. R. Boyd	1,080	0	0
G. Scales	1,048	10	0

For repairs to houses in Little Randolph-street, Camden Town, for the London and County House Property Company, Limited:—
J. O. Richardson, Clapham and Peckham (accepted).

For alterations and additions to No. 102, Southampton-street, Camberwell. Mr. Walter Graves, architect:—

King & Son	£350	0	0!
Niblett	274	0	0
Spencer & Co.	175	0	0
Fisher	169	0	0
J. O. Richardson	145	0	0!

For repairs and alterations at the Lord Stanley, Deptford, for the New Westminster Brewery Company. Mr. H. W. Budd, surveyor:—

Taylor	£229	0	0
Hoare & Son	217	0	0
King & Son	170	0	0
Pemberton	157	0	0
Lamble	119	0	0

For repairs to the Stanley Arms, Jamaica Level, for Mr. Drapper. Mr. H. W. Budd, surveyor:—

Hoare & Son	£279	0	0
Pemberton	212	10	0
King & Son	226	0	0
Almond	209	0	0
Lamble	193	0	0
Fordham	184	10	0

For two houses in St. John's-road, Park-street, Taunton, for Messrs. Cooksley & Hewer. Mr. Houghton Spencer, architect:—

Lane	£1,076	0	0
Fox	952	0	0
Greed & Woolfrey	950	0	0
Wyatt	890	0	0
Ware	799	0	0
Handford & Mountstephens*	775	0	0

* Accepted.

For warehouse, Sedley-place. Messrs. Eales & Son, architects:—

Simpson & Son	£2,250	0	0
Mark	2,130	0	0
Drew	2,107	0	0
Scott	1,999	0	0
Barnes	1,990	0	0

For pulling down and rebuilding house, with gateway, fireproof cellar, &c., No. 242, Long-lane, Bermondsey, for Mr. James Seaton. Mr. E. Crosse, architect. Quantities supplied:—

S. Kipps	£949	10	0
G. Picton	816	19	0
G. Simmonds	805	0	0
G. & S. Fisher	793	0	0
J. Wheeker	790	0	0
W. & F. Croaker	780	0	0
T. & F. Drake (accepted)	653	0	0

For residence, Shamley Green, Wonersh, near Guildford. Messrs. Peak, Lunn, & Peak, architects:—

Harvey Brown, Bramley	£983	12	6

For building St. Margaret's Mansions, Victoria-street, Westminster:—

Hall & Beddall, Waterloo Bridge	£34,700	0	0
H. Lovatt, Wolverhampton	33,758	0	0
Lucas Bros., Westminster	33,655	0	0
Smith & Co., South-street	33,470	0	0
G. Shaw, Westminster	33,125	0	0
Holland & Hannen, Bloomsbury	33,000	0	0
Higgs & Hill, Lambeth	32,475	0	0
Kirk & Randall, Woolwich	32,387	0	0
Adamson & Son, Putney	32,098	0	0
Perry & Co., Bow	31,910	0	0
Trollope & Sons, Pimlico	31,523	0	0
Longmire & Burge,* Osnaburg-st.	31,060	0	0

* Accepted.

For extension of Marlborough-road Board School. Mr. E. R. Robson, architect. Quantities by Messrs. Northcroft, Son, & Neighbour:—

C. W. Reading	£5,195	0	0
W. Downs	4,635	0	0
J. Rankin	4,430	0	0
Perry & Co.	4,349	0	0
W. Brass	4,290	0	0
W. Scrivener & Co.	4,268	0	0
W. Tongue	4,189	0	0
G. S. Pritchard	4,184	0	0
W. Oldrey	4,176	0	0
C. Wall	4,040	0	0
Stimpson & Co.	3,993	0	0

For works at the Elephant and Castle, Newington Butts. Mr. H. I. Newton, architect:—

Godden	£485	0	0
Pickersgill Bros.	439	0	0
Creaton	397	0	0
Canning & Mullins	393	0	0
Simpson (accepted)	330	0	0

For a master's house, for twenty-five boys, at the School, Derby, for the Rev. Walter Clarke. Mr. Edward John May, architect. Quantities by Mr. R. C. Gleed:—

Edward Wood, Derby	£1,798	15	0
John Wood, Derby	1,764	5	0
Walker & Slater, Derby	1,675	0	0
C. Bass,* Leicester	1,559	0	0

* Amended and accepted.

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W. F. (the scheme would not work).—G. J. F. (next week).—G. St. P. H. (shall appear. What was the cost of house?).—W. St. C. H.—J. W.—M. K. G.—F. R. K.—G. E. & Son.—Str. C. L.—H. P. D.—W. F. P.—F. E. M.—W. H. W.—Learner.—F. J. B.—M. U.—W. R.—J. B.—S. J.—W. D.—J. R.—T. R. S.—G. E.—W. O.—H. I. N.—F. G.—R. C. G.—F. T. W. E.—H. R. & R.—H. & P.—D. W.—J. T. O.—H. W.—J. J. W.—M. & Co.—J. N. H.—H. W. C.—J. P. S.—G. J. V.—W. H. E.—M. U.—A. P.—J. G. G.—W. H. P.—G. W. jun.—A. P.—P. L. & P.—F. A. S.—E. F. W.—C. Bros.—B. & F.—E. W.—B. S. & Co.—E. W. W.—W. M.

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